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The fiscal crisis that continues to grip this nation has generated enormous challenges for America's defense establishment. At the same time, by upending old certainties and assumptions, it has also opened the way for fresh thinking about our defense priorities and ways of doing business. In "Marching toward the Sweet Spot: Options for the U.S. Marine Corps in a Period of Austerity," Robert P. Kozloski offers an example of such fresh thinking regarding the way forward for the Marine Corps, a topic that has garnered much attention since the winding down of the combat missions of the Corps in Iraq and Afghanistan. A major focus of his analysis is the relationship of the Marine Corps to the Navy, on the one hand, and, on the other, to the special operations community. Robert Kozloski is a program analyst for the Department of the Navy and a former Marine.

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The Type 45 *Daring*-Class Destroyer

Ben Lombardi and David Rudd

If the Royal Navy, with its centuries of experience in constructing sophisticated warships, can see a critical new class cut to less than half by a combination of changing strategies and failures of project management, the naval projects and maritime security goals of others may come to grief as well.

The Other ULTRA

Vincent P. O'Hara and Enrico Cernuschi

In the late summer of 1942 the British made every effort to deny Field Marshal Erwin Rommel's Panzerarmee Afrika the materiel it required and are widely believed to have succeeded, largely thanks to ULTRA intelligence. But in fact the Italians did deliver Rommel's supplies, offsetting ULTRA with a signals-intelligence effort of their own.

Commentary

Charles W. Callahan

Book Reviews

FROM THE EDITORS

The fiscal crisis that continues to grip this nation has generated enormous challenges for America's defense establishment. At the same time, by upending old certainties and assumptions, it has also opened the way for fresh thinking about our defense priorities and ways of doing business. In "Marching toward the Sweet Spot: Options for the U.S. Marine Corps in a Period of Austerity," Robert P. Kozloski offers an example of such fresh thinking regarding the way forward for the Marine Corps, a topic that has garnered much attention since the winding down of the combat missions of the Corps in Iraq and Afghanistan. A major focus of his analysis is the relationship of the Marine Corps to the Navy, on the one hand, and, on the other, to the special operations community. Robert Kozloski is a program analyst for the Department of the Navy and a former Marine.

Fiscal constraints also continue to pose major problems for our NATO allies and the NATO alliance as a whole. In "Smart Defense: Brave New Approach or Déjà Vu?," Paul Johnson, Tim LaBenz, and Darrell Driver review past and current efforts within the alliance to enhance multinational collaboration through a variety of specialized programs, such as the Deployable Air Task Force spearheaded by the Benelux countries and the very recent initiative linking all NATO special operations forces. They conclude that this "smart defense" approach, while certainly not wholly new, holds out considerable promise as the alliance struggles with defining its missions in a post-Afghanistan era and balancing its priorities in a strategic environment of severe economic uncertainty.

In "Toward 'Land' or toward 'Sea': The High-Speed Railway and China's Grand Strategy," Wu Zhengyu offers a contribution to the ongoing debate within academic and policy circles in the People's Republic of China (PRC) concerning that nation's geostrategic challenges and the merits of its relatively recent turn to the sea. It is not widely known that in recent years the Chinese have also made massive investments in high-speed railroads linking the country's developed eastern seaboard to the interior. Though clearly motivated in significant part by a desire to consolidate the regime's grip on its restive western provinces, particularly Tibet, these railway projects are evidently viewed by some among China's elites as key enablers of a strategic option for the PRC that is fundamentally in tension with its ambitious naval buildup of the last decade or so and its maritime-oriented commercial and energy policies. In a classic geopolitical analysis (of a

sort that is common in today's China but increasingly rare in the West), Wu argues that the option of continental expansion is unrealistic given the difficulties it would necessarily create in the PRC's relationships with Russia and would-be clients in Central Asia. At the same time, the author does not see it as necessary or desirable for the PRC to challenge directly the American presence in the East Asian littorals. Wu Zhengyu is a professor in the School of International Studies at Renmin University of China in Beijing.

Practitioners of war gaming know that this arcane field remains more art than science. The Naval War College has a long gaming tradition, one that has been at the forefront of methodological thinking and innovation in this area (Francis J. McHugh's 1966 classic *Fundamentals of War Gaming,* for example, has recently been reprinted by the College). In "Adjudication: The *Diabolus in Machina* of War Gaming," Stephen Downes-Martin continues in this tradition with an analysis of the usually overlooked role of adjudicators in certain kinds of war games—those that set out to "discover" new lessons in warfare at the operational or strategic level. He argues that adjudicators should themselves be regarded as "players" in such games, that as much attention should be paid in game design and execution to the beliefs such players articulate in the course of a game as to the formal decisions they make. Stephen Downes-Martin is a professor in the Warfare Analysis and Research Department of the Center for Naval Warfare Studies.

The Gaza blockade incident of January 2009 and the controversy surrounding it is a prime example of what some in recent years have usefully characterized by the neologism "lawfare." The "human rights activists" aboard the Turkish ship *Mavi Marmara* who attempted to breach Israel's proclaimed blockade of the Hamas-controlled Gaza Strip were clearly attempting to provoke an incident that could be used to accuse Israel of violating international law; they succeeded when an Israeli boarding party was resisted by some of those on the ship, leading to violence in which nine Turkish citizens were killed. Investigations of the incident were conducted by special panels of legal experts in Turkey, Israel, and the United Nations, with results that were largely predictable. In "The Gaza Flotilla Incident and the Modern Law of Blockade," James Farrant asks what can be learned from this experience not only about the merits of the various positions taken over this matter but about its implications for the current status of the international law of blockade. Lieutenant Commander James Farrant is the first Royal Navy exchange officer in the International Law Department of the Center for Naval Warfare Studies.

The Royal Navy is also represented in this issue by Ben Lombardi and David Rudd, "The Type 45 *Daring*-Class Destroyer: How Project Management Problems Led to Fewer Ships." Lombardi and Rudd provide an extended account of the evolution of the United Kingdom's Type 45 air-defense-destroyer replacement

program over the last decade or so, detailing the political and bureaucratic obstacles it has faced as well as the management mistakes that resulted in a buy of only six vessels out of an original requirement of twelve. Their conclusion: "The less-than-satisfactory outcome should give pause to decision makers elsewhere seeking to recapitalize their own fleets. If the above-mentioned problems befell a country with a long history of building sophisticated naval vessels, those with less experience and less money to correct programmatic errors may also see their naval construction projects and maritime security goals come to grief." This should come as cold comfort indeed to those familiar with the recent history of naval procurement in the United States. Ben Lombardi and David Rudd are strategic analysts with Defence Research and Development Canada's Centre for Operational Research and Analysis, in Ottawa.

The Royal Navy makes yet another appearance here in "The Other ULTRA: Signal Intelligence and the Battle to Supply Rommel's Attack toward Suez," by Vincent P. O'Hara and Enrico Cernuschi. Because research and publication on intelligence during World War II and beyond has been so one-sidedly dominated by British and American scholars, it can be argued, a true appreciation of the intelligence balance during that war remains to be achieved. O'Hara and Cernuschi, in a well-researched account of the hitherto little-known signals intelligence successes of the Italian Regia Marina against the British in the central Mediterranean, have made an important contribution to remedying this situation.

Finally, we offer a fascinating dispatch from the front lines of jointness in the form of Charles Callahan's "Stowaway Soldier, Camouflage in a Khaki World: Creating a Single Culture of Trust from Distinct Service Cultures." Dr. (and Colonel) Callahan was the first Army officer to serve as deputy commander of the National Naval Medical Center, in Bethesda.

NEW FROM THE PRESS: NEWPORT PAPER 39
Influence without Boots on the Ground: Seaborne Crisis Response, by Larissa Forster, the thirty-ninth title in our Newport Papers monograph series, is now available for sale in print form by the Government Printing Office online bookstore, at http://bookstore.gpo.gov, as well as online at our own site. The monograph is an empirical analysis of crisis characteristics, actors, U.S. involvement, and outcomes, exploring the political use of naval forces during foreign-policy crises short of full-scale warfare. Dr. Forster, of the University of Zurich, uses a statistical model to analyze naval crisis data in ways useful to policy makers and strategists—outlining the unique characteristics, advantages, and disadvantages of naval forces and summarizing theoretical literature on naval diplomacy and coercion, as well as earlier quantitative research.

IF YOU VISIT US

Our editorial offices are now located in Sims Hall, in the Naval War College Coasters Harbor Island complex, on the third floor, west wing (rooms W334, 335, 309). For building-security reasons, it would be necessary to meet you at the main entrance and escort you to our suite—give us a call ahead of time (841-2236).
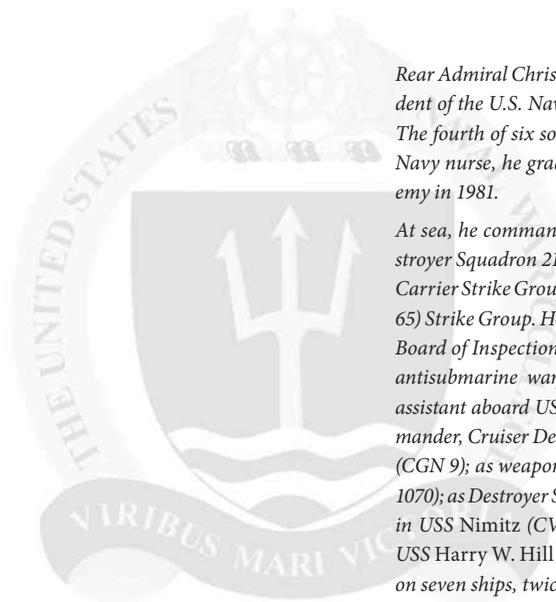
Rear Admiral Christenson became the fifty-third President of the U.S. Naval War College on 30 March 2011. The fourth of six sons of a Navy Skyraider pilot and a Navy nurse, he graduated from the U.S. Naval Academy in 1981.

At sea, he commanded USS McClusky *(FFG 41), Destroyer Squadron 21 in USS* John C. Stennis *(CVN 74), Carrier Strike Group 12, and the USS* Enterprise *(CVN 65) Strike Group. He most recently served as President, Board of Inspection and Survey. He also served as the antisubmarine warfare officer and main propulsion assistant aboard USS* Cook *(FF 1083); as aide to Commander, Cruiser Destroyer Group 1 in USS* Long Beach *(CGN 9); as weapons officer aboard USS* Downes *(FF 1070); as Destroyer Squadron 21 combat systems officer, in USS* Nimitz *(CVN 68); and as executive officer of USS* Harry W. Hill *(DD 986). He deployed eight times on seven ships, twice in command of McClusky.*

Ashore, he commanded the Surface Warfare Officers School in Newport, and as a new flag officer he served as Commander, Naval Mine and Anti-submarine Warfare Command, Corpus Christi, Texas. He also served at the U.S. Naval Academy as a company officer, celestial navigation instructor, assistant varsity soccer coach, and member of the admissions board; at Headquarters, U.S. Marine Corps, in the Strategic Initiatives Group; and on the Joint Staff, in J5 (Strategic Plans and Policy) and as executive assistant to the assistant chairman.

He graduated with distinction and first in his class from the Naval War College, earning his master's degree in national security and strategic studies. He was also a Navy Federal Executive Fellow at the Fletcher School of Law and Diplomacy.

Rear Admiral Christenson has been awarded the Defense Superior Service Medal, the Legion of Merit (five awards), the Meritorious Service Medal (two awards), the Navy Commendation Medal (five awards), and the Navy Achievement Medal.

PRESINT'S FORUM

Thank you.

The Naval War College is the oldest War College in the world, founded in 1884.

Our founder Rear Admiral Stephen B. Luce held fast to his belief that the Naval War College "is a place of original research on all questions relating to war and to statesmanship connected with war, or the prevention of war."

Our mission at the Naval War College is to Educate Leaders.

Every issue of the *Naval War College Review* is filled with writing and ideas that deal directly with Admiral Luce's beliefs and that directly help us fulfill our mission.

To all of the scholars at the Naval War College Press and the *Naval War College Review,* I would like to say *Thank You* for all of your outstanding work. You tirelessly bring together great authors who write about the important issues that face our Navy, our Nation and our world.

Great nations have great navies, and great navies have great institutions of learning. The Naval War College is most blessed and fortunate to have the *Naval War College Review.*

All things are ready, if our minds be so.

SHAKESPEARE, *HENRY V,* ACT 4, SCENE 3

JOHN N. CHRISTENSON
Rear Admiral, U.S. Navy
President, Naval War College

Mr. Kozloski served in the U.S. Marine Corps from 1997 to 2007 and is currently a program analyst for the Department of the Navy. He recently began the PhD program in public policy at George Mason University.

MARCHING TOWARD THE SWEET SPOT

Options for the U.S. Marine Corps in a Time of Austerity

Robert P. Kozloski

Before leaving his position as Secretary of Defense in 2010, Robert Gates offered a wake-up call in a speech to the Marine Corps Association in 2010: "It [is] time to redefine the purpose and size of the Marine Corps." The perception even then was that the Marine Corps had become too big, too heavy, and too far removed from its maritime roots.[1]

Gates further noted, "I directed them [the Secretary of the Navy and Commandant of the Marine Corps] not to lose sight of the Marines' greatest strengths, a broad portfolio of capabilities and penchant for adapting that are needed to be successful in any campaign. The counterinsurgency skills the Marines developed during this past decade, combined with the agility and esprit honed over two centuries well positioned the Corps, in my view, to be at the tip of the spear in the future when the U.S. military is likely to confront a range of irregular and hybrid conflicts." He concluded, "Ultimately, the maritime soul of the Marine Corps needs to be preserved."[2]

The Commandant of the Marine Corps at the time, General James Conway, shared a similar concern that many Marines, although battle hardened by nearly a decade of combat in Iraq and Afghanistan, had never stepped foot on board a ship. In response to Gates's challenge, Conway established a Force Structure Review Group to examine what the force in readiness should look like in the twenty-first century. The group's findings were aligned conceptually with Gates's observations. The internal assessment concluded that the Marine Corps should reduce the size of its active component to about 186,000 personnel (a figure nearly twelve thousand larger than when the recent wars began) and identified its joint-force operational "sweet spot" as providing formations larger than special-operations teams but smaller than traditional army units.

Getting to this sweet spot will be a challenge for the Marine Corps, as it will have to overcome institutional resistance, generated in no small part by a long, proud history of operational readiness and combat effectiveness. However, the Marine Corps must face current realities and adapt both to the changes in the geopolitical environment and to the dire fiscal problems facing the nation. In fact, the Marine Corps will likely become even smaller than the size recommend by the Force Structure Review Group. Therefore, it is critical for the Corps to find and implement innovative solutions to meet future demands while continuing to be America's crisis-response force.

To achieve these ends, the Marine Corps should carefully consider each of Dr. Gates's concerns, as they will help it shape the problems it will face as it attempts to innovate. A constrained defense budget and changes in the operational environment must stimulate efforts to define realistically the Marine Corps purpose and role within the joint force. There are several options to consider that will help the service as it prepares for the operational challenges of the twenty-first century by moving toward organizing for and operating within the newly recognized sweet spot—all within the context of a shrinking defense budget.

THE PROUD—BUT NOT SO FEW

The U.S. Marine Corps may be the smallest of the four U.S. military services, but it is significantly larger than any other marine or naval infantry in modern history. For the sake of comparison, figure 1 illustrates how the size of the current Marine Corps compares to those of other naval infantry forces and even capable military forces of foreign states. The Marine Corps has evolved into a self-contained military force, the like of which many developed nations might wish to possess.

It is difficult to make a direct comparison to foreign naval infantries, because the U.S. Marine Corps is an independent service and therefore must maintain an appropriate level of overhead in order to execute the requirements of U.S. Code Title 10, which establishes the legal basis on which the roles, missions, and organization of each service rest. Also, the Corps dedicates a significant portion of its force structure to armor and aviation capabilities not normally found in traditional naval infantries.[3] Finally, the Marine Corps performs a host of missions outside the scope of its traditional amphibious role, such as embassy security, chemical and biological incident response, security cooperation, and security and transportation for the president.

The minimum size of the Marine Corps is codified in federal statute. According to Title 10, "The Marine Corps, within the Department of the U.S. Navy, shall be so organized as to include not less than three combat divisions and three air wings, and such other land combat, aviation, and other services as may be organic

FIGURE 1
INTERNATIONAL FORCE COMPARISON
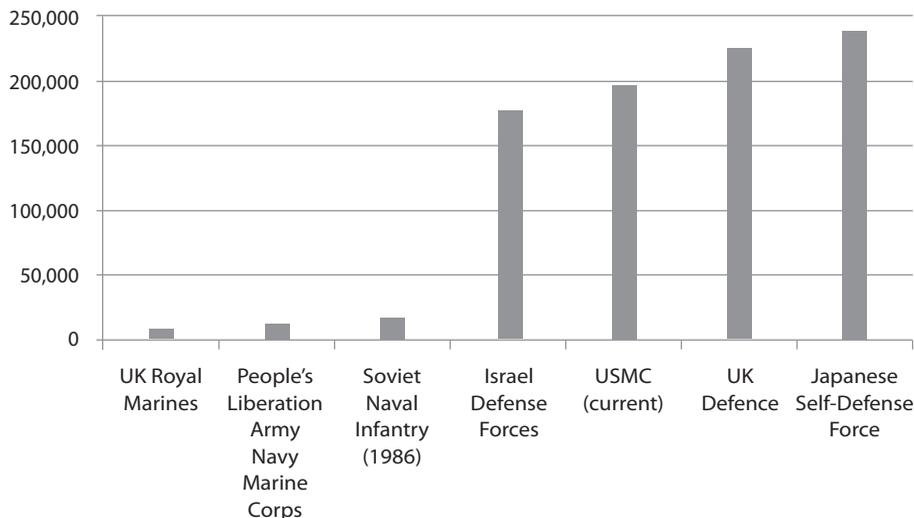
therein."[4] Given the aforementioned conditions, it may be time to revisit this requirement—in terms of both numbers and units of measure.

Determination of the exact "end strength" (that is, the personnel a service requires to accomplish its statutory tasks—technically, the number it is authorized to have at the end of a fiscal year) of the Marine Corps is extremely subjective. One approach often employed by military leaders uses the ability to support the operational plans of the combatant commanders (that is, the geographic and functional unified commands—Pacific Command, Strategic Command, and so on) as a critical metric in justifying force structure. Unfortunately, the validity of this approach is limited by the shortfalls of the defense planning process.[5] Defense planning has historically been ineffective and of questionable integrity;[6] it should not be a significant consideration in determining future Marine Corps end strength.

The desire to create a single, integrated, joint force may have taken the services, particularly the Marine Corps, away from their unique strengths. Historically the Marine Corps excelled at taking equipment developed by the U.S. Navy or Army and modifying it, often at low cost, to support its own concepts. One consequence of the Goldwater-Nichols Department of Defense Reorganization Act of 1986 has been to inject the unified commands into the budgetary and programming process of the services.[7] Each service assigns forces and capabilities to the plans, and its end strength is thereby (as we have seen) justified. The demands for these capabilities are then reflected in budget submissions to Congress. Currently any serious proposal to reduce force structure begs the response

that inability to support combatant commanders' plans results in an increased risk to national security. To help alleviate this problem, a recent study from the Center for a New American Security suggests, services must "challenge the unconstrained requirements of the combatant commanders" so as to preserve sustainability of ships and aircraft.[8]

Another important factor that relates to the size of the Marine Corps is its historical relationship with Congress. Congressional support for the Marine Corps over the past six decades has been unwavering, and many consider it the most politically savvy of the services.[9] As figure 2 indicates, the Marine Corps end strength today is larger than at the end of the Cold War, while those of the other services have dropped significantly during the same period. This congressional affinity for the Marine Corps may have created a force imbalance that hinders its operations—reduction in the size of the Navy has made it unable to support fully the Marine Corps's amphibious-lift requirements.

However, in recent years, the Marine Corps may have lost some of its elite status on Capitol Hill and may have expended the political capital necessary to survive forthcoming fiscal reductions within the Department of Defense (DoD). As former Senate staffer and author of the *Maneuver Warfare Handbook* William S. Lind notes, "The Marine Corps' clout on Capitol Hill was envied by the other services. The Marine Corps then had little money and not much interest in programs. Its message to Congress and to the American public was, 'We're not like the other services. We aren't about money and stuff. We're about war.' That message brought the Corps unrivaled public and political support."[10] However, the

FIGURE 2
MARINE CORPS END STRENGTHS

Army (−25.17%)
Navy (−44.79%)
Marine Corps (+4.57%)
Air Force (−41.68%)
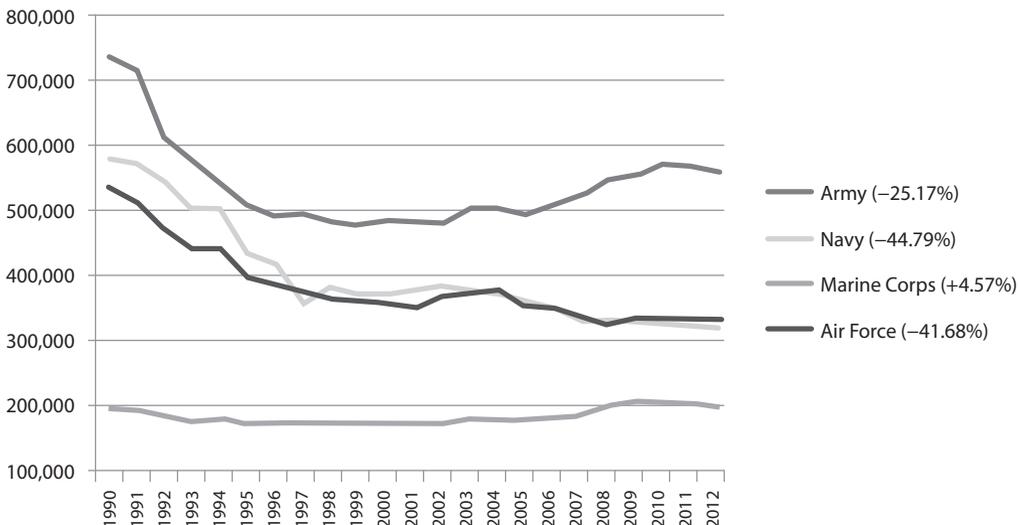
acquisition problems of the MV-22 Osprey and Expeditionary Fighting Vehicle and the demand for a Marine Corps variant of the Joint Strike Fighter may have changed that perception.

IDENTITY CRISIS

While the Marine Corps's mission is clearly articulated in law, in reality the service is experiencing an identity crisis of sorts.[11] As the Center for a New American Security argues, "Today, the Marine Corps is wrestling with three conflicting identities: the nation's amphibious force in readiness, deployed afloat around the world ready to respond to crises; its small wars force of choice, specializing in irregular warfare; and a middleweight force that serves as the nation's second land army, backing up the U.S. Army during prolonged conflicts. This third identity —fighting in major wars—has dominated the Marines' combat history from Belleau Wood to Guadalcanal, from the Chosin Reservoir to Khe Sanh and now from Fallujah to Marja."[12]

To a large extent, the Marine Corps is a victim of its own success. It continually struggles not to become a second land army, but it does perform exceptionally well in major ground-combat operations. This was clearly evident in Iraq and Afghanistan. However, one must ask whether Marine Corps participation in these land-centric operations was actually required or was simply the effect of the joint culture—the perception that all services must participate in any significant combat operation. During Operation IRAQI FREEDOM, the Army's 4th Infantry Division did not arrive in the theater before ground operations commenced, a clear indication that the Army had enough capacity, if sequenced into the theater differently, to have conducted the ground war without the Marine Corps. Could the Marine Corps have been better used for smaller missions, such as seizing and holding critical objectives—like the capture by the 26th Marine Expeditionary Unit (Special Operations Capable) of the airfield at Mosul—instead of sending I Marine Expeditionary Force (Reinforced) to fight side by side with an Army division?

A robust history of successful operations and inclusion in combatant commanders' land-centric plans drive Marine Corps investments. As General Conway noted regarding the uniqueness of the Marine Corps, "We've got to synergize. We cannot, in my mind, have duplication of effort across the joint force. I think it is incumbent on each Service to take a look at where we fit in to the whole patchwork effort of the Department of Defense."[13] However, an examination of recent budget expenditures indicates the Marine Corps invests heavily in capabilities found in other services rather than those that make it unique.[14]

Over the past few decades, the Marine Corps appears to have lost an inherent ability that was once its bedrock—that is, combining proportional force with

cunning intellect to develop innovative solutions to operational problems. Today the Marine Corps may have, not unlike the other services, placed excessive institutional faith in extremely costly acquisition programs. In fiscally constrained times, such programs may marginalize the Marine Corps's greatest asset, one for which there is no substitute—Marines.

It would be prudent for the Marine Corps, methodically and with guidance and direction from the Navy Secretariat, to think through how to maintain its war-fighting capabilities with a much smaller force. Rather than merely defending the status quo, the Marine Corps must be willing to innovate during this potential third interwar period, and in a manner that will help preserve its unique capabilities, which are essential components of the joint force.

THE NEW REALITY

As the Marine Corps contemplates how best to evolve as the twenty-first-century force in readiness, it must contend with two pressing sets of issues. The first comprises the fiscal realities facing both the nation and the Defense Department. The second involves changes in the operational environment that may render existing organizational structures and nonessential mission capabilities obsolete or simply unaffordable.

Clearly, given the fiscal problems facing the nation and the enormity of the national debt, the defense budget will be under pressure for the foreseeable future. Despite having funded a decade of war, with questionable return on investment, it appears as though the American taxpayer will not be afforded the historical "peace dividend" as operations in Afghanistan cease.[15] Nonetheless, even if there is no reduction to the defense budget, the amount of war-fighting capability obtained by the total obligation (that is, spending) authority of the Marine Corps will continue to decline for two reasons: the high cost of military personnel and the reduced purchasing power of acquisition dollars.

As General Conway once noted, "People are expensive. Our manpower accounts constitute about 58 percent of our annual Marine Corps budget."[16] Personnel is the greatest cost driver in the Marine Corps, and unless there are sweeping reforms to the personnel compensation system for all the U.S. military, personnel costs will continue to increase. If they continue growing at the current rate, and the overall defense budget remains flat (allowing for inflation), military personnel costs will consume the entire defense budget by 2039.[17]

At the same time, the purchasing power of defense dollars is declining. All components of the Defense Department must deal with the reality that defense dollars buy less capability each year because of internal cost inflation. As a recent report from the Center for Strategic and International Studies notes, "[DoD]

is largely ignoring the fact that the defense budget is being hollowed out from within and that the reduced purchasing power (in terms of military capabilities) of the defense dollar is digging the hole even deeper." Further, "a nominal 20 percent defense drawdown may 'feel' like a 30–35 percent cut to DoD managers struggling to provide military capabilities to meet the nation's needs."[18] The Center for Strategic and Budgetary Assessments summarizes this dilemma succinctly:

> Overall, nearly half of the growth in defense spending over the past decade is unrelated to the wars in Afghanistan and Iraq—personnel costs grew while end strength remained relatively flat, the cost of peacetime operations grew while the pace of peacetime operations declined, and acquisition costs increased while the inventory of equipment grew smaller and older. The base budget now supports a force with essentially the same size, force structure, and capabilities as in FY2001 but at a 35 percent higher cost. The Department is spending more but not getting more."[19]

To exacerbate problems further, as respected analyst Dr. Michael O'Hanlon recently noted, because of overly optimistic budget estimates by DoD, it will have to come up with $500 billion in additional savings to meet the estimates of the Congressional Budget Office over the next decade: "We are going to have to eliminate programs and forces just to accomplish the savings goals on the books now."[20]

For all these reasons, the Marine Corps, like all the services, will surely be under increased pressure to reduce the size of its force over the next decade. Can the Marine Corps realistically expect the other services to absorb the majority of fiscal cuts, as occurred in the 1990s?

Meanwhile, a host of operational challenges should force the service to reassess its current posture. To its credit, the Marine Corps has undertaken this task by forming the Ellis Group at Quantico, Virginia, reporting directly to Headquarters, U.S. Marine Corps.[21] This group is important for internal decision making, but a much broader, even national, discussion needs to occur. The Marine Corps acknowledges that its capabilities cross into the mission spaces of the three domain-centric services. What unique capabilities is the Marine Corps to bring to the American national-security enterprise? Are the remnants of the unique capabilities that it displayed so extraordinarily during World War II and Korea still relevant in future operational environments? Given the aforementioned fiscal issues, how much Marine Corps does the nation now actually need? The process that attempts to answer these questions should not occur in isolation within the Marine Corps.

The first publicly released report of the Ellis Group identified several emerging threats the Marine Corps will likely encounter and how the current force structure could be used to counter them.[22] They include:

- Instability and crisis will be persistent features.

- Regional challengers may necessitate larger-scale interventions than in recent decades.

- Nonstate and hybrid actors are increasing the complexity of the operational environment.

- Antiaccess and area-denial capabilities will expand.

- Terrorism and the proliferation of weapons of mass destruction persist.

- A "battle of signatures"—electronic, visual, audible, etc.—will be critical to avoiding detection, especially in the littoral.

- Low-cost area-denial capabilities remain a significant obstacle to operations in littoral zones.

Given these threats and challenges, and in light of the proliferation of advanced technology, several new concepts have surfaced over recent years that are ideally suited for the future Marine Corps.

Distributed MAGTFs. A recent report from the Center for Strategic and International Studies prepared for the Department of Defense stressed the importance to the overall U.S. military posture in the Pacific of establishing "distributed" Marine air-ground task forces (MAGTFs), one each in Japan, Guam, Australia, and Hawaii.[23] This distribution of forces would facilitate a variety of missions, including training and exercises with partner nations and contingency response for humanitarian disaster-recovery missions, and it would form the nucleus of a crisis-response force for speedy insertion into partner nations under attack.[24]

Underlying the distributed MAGTF organizational structure is the principle of "the fingers and the fist."[25] That is, the "fingers," or smaller units, have the ability to conduct operations independently, but as the operational situation demands, they can aggregate to form a heavier "fist."

Deep Operations. The Marine Corps should further develop the capability to conduct "deep operations" launched from sea bases or other platforms. The concept relies on the notion of identifying critical gaps in enemy-held terrain and quickly exploiting them before the adversary can respond effectively. It was as part of such an operation during IRAQI FREEDOM that, as mentioned previously, Marines seized the critical airfield complex at Mosul, far behind enemy defenses.

Infantry battalions must be capable of conducting operations deep within enemy-held battle space, as did the Marine Corps Raider battalions of World War II.[26] These units need to organize and train for dispersed, small-unit, fleet reconnaissance and strike operations, as well as raids on high-value enemy network targets.

Forward-Base Seizure and Defense. Many consider the Air-Sea Battle operational concept purely a Navy–Air Force endeavor. In fact, however, the Marine Corps would certainly have a role in seizing and defending advanced bases, particularly on remote islands. Seizing forward operating bases may enable the Marines or joint forces to conduct a variety of operations, including unmanned surveillance; electronic or directed-energy attack; the boarding, search, and seizure of vessels; and even "swarm" operations against formations of the People's Liberation Army Navy.[27]

Enforcement of Offshore Control. The emerging strategy of "offshore control" for the undesirable and unlikely scenario of having to confront China with military force would mean remarkable opportunities for the Marine Corps. Briefly, offshore control involves a distant blockade of China, with a set of concentric rings that would deny China use of the sea inside the "first island chain" (running from the Kuriles through Japan, the Ryukyus, and the Philippines to Borneo), defend the sea and air space of the first island chain, and dominate the air and maritime domains outside the chain.[28]

This type of operation would be ideally suited for the Marine Corps, particularly in conducting contested boardings or defending friendly or cooperative commercial traffic against interdiction. The geographic area and the number of vessels involved would be significant and would require the Marine Corps to operate from a variety of platforms in a highly distributed manner.

Nonlethal Capabilities. Changes to the operational battlefield and the global trend toward avoidance of high casualties from military operations may expand the use of nonlethal weapons well beyond the original purpose of crowd control. As Colin Gray notes, during irregular conflicts in the future the U.S. armed forces "will need to curb their traditional, indeed cultural, love affair with firepower."[29]

Effective employment of nonlethal weapons may prove to be a critical niche role for the Marine Corps in the joint force. The service has historically viewed itself as "no better friend; no worse enemy," and this belief would well serve a force that can quickly flex from nonlethal to lethal and back again as the situation dictates.

In the future, nonlethal weapons will play a critical role in crisis response, providing policy makers as they do with more options between diplomacy and economic sanctions, on one hand, and the conventional use of force, on the other. Such new options may be critical to preventing escalation and enabling intervention at a lower threshold of conflict than is now possible.[30]

These emerging concepts for the Marine Corps have common threads: relatively small units, agile organizations, distributed and decentralized operations, and tight linkage to the maritime environment. The Marine Corps has been considering distributed operations, operational maneuvers from the sea, and other now-valuable concepts for the better part of the last decade. To turn these concepts into actual capabilities, the Marine Corps will have to orient and commit itself intellectually, institutionally, and organizationally to solving the actual operational problems involved.[31]

The following options might assist leaders within the Department of the Navy and the national policy community in considering changes to adapt the Marine Corps to twenty-first-century challenges. They represent fiscally responsible approaches to organizing the service's capabilities and integrating them with those of other elements of the joint force—for though the Marine Corps will likely become smaller, it will continue to play a critical role in American defense.

THINK NAVAL

A Brookings Institution scholar recently argued that the greatest challenge that lies ahead for the Marine Corps is not repercussions from the termination of its Expeditionary Fighting Vehicle program but rather the very nature of coordination between the Corps and the U.S. Navy. That is, the author holds, whether the subject is concepts of sea basing, assumptions about assault and transport shipbuilding plans, or the Marines' role in the development and execution of Air-Sea Battle doctrine, the alignment within the Marine/Navy team is not as seamless as it should be.[32] This challenge, however, is one that also presents great opportunities for the Marine Corps.

The present situation is not unlike that of the 1990s. With the end of the Cold War there was emphasis on evolving the force to counter the threats posed in the new geopolitical environment. Also like today, there was fiscal pressure to shrink the force, so as to reap the benefits of the so-called peace dividend. These two factors were instrumental in reinvigorating Navy–Marine Corps integration. The two services had to reenergize an operational partnership that had lapsed since the end of the Korean War. In large measure, the 1990s can be seen as a period of operational reappraisal and debate between and within these two sea services on the extent and ramifications of their renewed operational partnership.[33]

The naval services have recognized the need to continue to pursue naval integration and have taken several important steps toward this end. One, known as the "Single Naval Battle" concept, provides an overarching vision of how the services must work together to offer the nation strategic value and operational effectiveness. Specifically, "this new approach to planning and execution allows functional warfare communities and individual naval services to better understand their

relationship to the broader naval and joint forces, identify critical dependencies, optimize forces, ensure compatibility and increase partnerships."[34]

While naval operational integration has received various degrees of leadership attention over the years, it is critical that enduring structures and processes be put in place to ensure that the capabilities of the U.S. Navy and Marine Corps are integrated and nonredundant in mission areas of common interest. In May 2011 the Commandant of the Marine Corps and Chief of Naval Operations agreed to reestablish the Naval Board—originally the Navy General Board, an advisory body that operated valuably from 1900 to 1951. The revived board will "identify naval war fighting, operational employments and force development issues that should be considered in order to optimize the contributions of the naval services across the range of military operations in the naval domain."[35] While this is an important first effort, there is certainly room for improvement. It is unlikely that full cooperation will ever be achieved among service leaders when competing interests are present. As fiscal pressure increases, so too will the competition for limited resources. Adding the Navy Secretariat—particularly the Deputy Under Secretary of the Navy for Plans, Policy, Oversight, and Integration—to this forum would ensure that the secretary's strategic guidance was fully considered and provide a mediator for contentious issues. This leadership triad works well in other department-wide governance structures, such as the Department of the Navy's Business Transformation Council. The Naval Board is an excellent forum in which to discuss top-level integration, but other measures should be put in place as well to ensure that integration flows through all echelons of command. Figure 3 depicts three levels of naval integration.

In any case, the Naval Board meets periodically to discuss various topics; it cannot be focused on any single mission area. In mission areas of shared interest, offices should be assigned responsibility as "Naval Executive Agents," to make recommendations to the Naval Board.[36] Figure 4 lists mission areas of interest to both services. The organizations assigned should not be specially formed but rather be existing commands with the preponderance of resources

FIGURE 3
LEVELS OF NAVAL INTEGRATION

Naval Board

Policy/Strategy

Naval Executive Agents

Mission Area Integration

Naval Commands

Tactical Execution

FIGURE 4
NAVAL MISSION AREAS

Navy-centric	Common Areas		USMC-centric
• Undersea Warfare • Surface Warfare	• Aviation • Expeditonary Operations • Homeland Defense • HA/DR • Amphibious Operations • Mine Warfare • Air Defense • Civil Affairs	• Antiterrorism/Force Protection • Cyberwarfare • Information Operations • Intelligence • Supply/Logistics • Electronic Warfare • C4ISR • Installation Management	• Land Warfare

or expertise in the specific mission area needed to fill this new role. A Naval Executive Agent should seek opportunities to integrate fully Navy and Marine Corps capabilities, doctrine, and even organizations within the mission area. This approach could be applied to a host of mission areas: special operations, intelligence, cyberspace operations, civil affairs, information operations, irregular warfare, or electronic warfare, for example.

At the tactical level, new organizational structures must be considered to combine capabilities and reduce unnecessary overhead. This is not the first time the Navy and Marine Corps have struggled with the problem of how best to integrate their efforts in common mission areas. In 1990, the commander of the Naval Special Warfare Command, Admiral G. R. Worthington, conducted a detailed study on how the Navy and Marine Corps should organize for riverine warfare.[37] The Worthington Study, as it became known, recommended the creation of a Mobile Riverine Force that would integrate a MAGTF and a Navy river assault group. This concept was not acted on, because of the low priority given to riverine warfare during the budget reductions of the 1990s, but the concept remains valid and could be applied to a number of operational areas.

Riverine operations have never been fully embraced as an enduring mission for either service, but the concept of a truly *naval* command is worthy of serious consideration, particularly in operational mission areas of interest to both services. Intelligence, naval special operations, civil affairs, information operations, and logistics all present opportunities for truly naval structures as Admiral Worthington recommended. In other areas, such as cyberwarfare, the most beneficial alignment may be to have one service provide capabilities for both.

By examining the mission commonalities across the naval services, "trade space" can be identified. For example, if the Navy's Seabees were trained and equipped for the full spectrum of engineering operations, from breaching to

FIGURE 5
NEW NAVAL EXPEDITIONARY FORCE
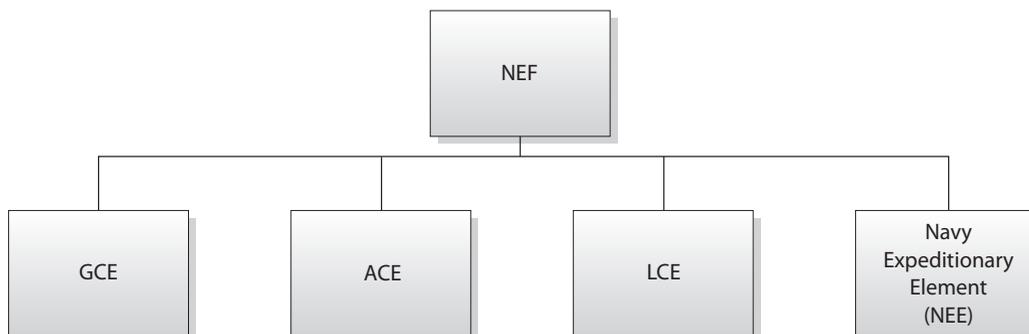
Notes: NEF = naval expeditionary force; GCE = ground combat element; ACE = air combat element; LCE = logistics combat element.

building, would the Marine Corps need a large cadre of combat engineers? Could a portion of that manpower be repurposed for different forms of engineering, such as expeditionary "3-D" manufacturing?[38] This kind of cross-service analysis could not only develop naval operational capabilities but also yield a variety of opportunities to improve both the Navy and Marine Corps.

Significant personnel reductions could certainly be achieved through naval integration; however, it is difficult to determine whether the reductions would come from the Marine Corps or from the Navy. For instance, the expeditionary capabilities currently organized under the Naval Expeditionary Combat Command might be more efficiently organized by attaching them to the Marine Expeditionary Forces (MEFs), thus creating a true naval expeditionary force, as depicted in figure 5.

IT'S HARD TO BE SPECIAL

Special operations forces have played an increasingly prominent role in military operations over the past two decades. From the early 1980s to 2005, when Secretary of Defense Donald Rumsfeld directed the Marine Corps to become part of U.S. Special Operations Command (USSOCOM), the Marine Corps resisted inclusion in the special operations community. Today, however, recognizing that special operations will play a critical role in future military operations, the Marine Corps is faced with the challenge of how best to integrate its unique capabilities with those of the special operations community without compromising traditional mission competence or service culture. With a decade of growth in the capabilities of the Naval Special Warfare community, the question of how much is enough must be asked. Determining how the Marine Corps can fit into this increasingly crowded mission space without redundancy is a problem the service is currently struggling to solve.

In 2005, in response to the directive to become part of USSOCOM, the Marine Corps established Marine Special Operations Command. MARSOC added to the existing capacity in the direct-action, special-reconnaissance, foreign internal defense, and counterterrorism SOF (special operation forces) disciplines. The question remains of how to integrate the rest of the Marine Corps, when appropriate, into special operations missions while under fiscal pressure to reduce the size of the force.

First, the current fiscal problems facing the entire DoD should force leaders within the Office of the Secretary of Defense, the Joint Staff, and the services to assess realistically what capabilities are ideally suited for each service. This assessment may result in a realignment of capabilities. While any encroachment on missions currently performed by a service will be met with stiff resistance, services may also see opportunities to expand into emerging mission areas.

One such capability that should be reexamined through this lens is the Air Force's special tactics squadrons (STSs) and the Marines' air-naval gunfire liaison companies (ANGLICOs). The STSs comprise three elements: combat controllers, specially trained to conduct air traffic control and coordinate precision fire support (both close-air support and battlefield air interdiction) while embedded within SOF ground units; special operations weathermen, who provide accurate, local weather forecasts while forward deployed in hostile environments; and para-rescue men. This Air Force capability is remarkably similar to what some experts consider could be an important contribution of the Marine Corps to the joint force in the future. As Jim Thomas, the director of research at the Center for Strategic and Budgetary Assessments, noted in testimony before the House Armed Services Committee, "Small teams of highly distributed / highly mobile Marines could conduct low-signature amphibious landings and designate targets ashore for bombers and submarines as a vanguard force in the early stages of a blinding campaign."[39]

The current Deputy Under Secretary of the Navy, Robert Martinage, recommended in 2008 that the Air Force double the number of STSs, in order to provide steady-state support to each special forces group, Naval Special Warfare Groups 1 and 2, the Rangers, and MARSOC.[40] He also pointed out numerous other opportunities for the Air Force to expand its SOF portfolio. However, the fiscal realities of today will likely prevent earnest consideration of some of these recommendations for expansion. Transferring the STS mission set to the Marine Corps would free up resources to develop Air Force–unique capabilities. With the exception of the para-rescue men, the Marine Corps already possesses similar capabilities, and increasing the number of ANGLICO units may provide a reasonable way to bridge the gap between the special operations community and the

Marine Corps. While the Marine Corps historically has been loath to create or maintain elite teams that would operate outside the MAGTF construct, the complexity of future challenges will likely require such unprecedented integration.

A second approach to special operations integration can be achieved through application of the previously discussed Naval Executive Agent concept to naval special operations. When originally developing the Marine Expeditionary Unit (Special Operations Capable) concept, the Marine Corps developed a list of special operations missions outside the scope of traditional missions. As battalions —with their associated aviation, logistics, and command components—work toward deployment as Marine expeditionary units (MEUs), they progress through a series of progressively more challenging training events and exercises that establish their ability to conduct these nontraditional missions. The workups culminate in a certification exercise certifying the MEU as "special operations capable" and the amphibious ready group in which it is to embark as ready for deployment.[41] The list of missions has broadly remained the same since the inception of the program.

An alternate approach would be for USSOCOM to develop the list of special operations missions needed within the maritime domain and appropriate for a MEU-sized force. In effect this list would collect USSOCOM missions that the Marine Corps could perform. If the Naval Special Warfare Command, for example, were the Naval Executive Agent for naval special operations, it would be responsible for certification of MEUs and ensure that their capabilities were fully integrated with other Navy Special Warfare / special operations missions. This process change would fully integrate the Marine Corps with the special operations community and yet not infringe on the MAGTF construct or the authority of the MEU commander. Figure 6 outlines the proposed relationships.

FIGURE 6
PROPOSED SPECIAL OPERATIONS RELATIONSHIPS
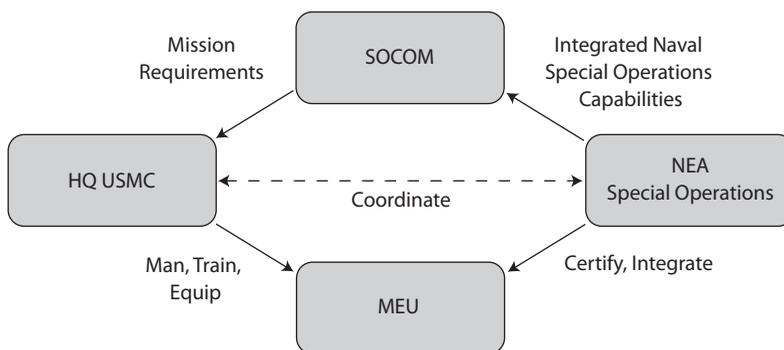
Notes: HQ USMC = Headquarters U.S. Marine Corps; SOCOM = U.S. Special Operations Command; NEA = Naval Executive Agent.

A permanent MARSOC contribution to the U.S. Special Operations Command and a broader use of ANGLICO units represent fiscally responsible solutions for the Marine Corps–SOF integration dilemma.

RESTRUCTURE THE OPERATING FORCES

For decades, expert practitioners within the Marine Corps have seen a need to restructure its operating forces.[42] The duplication of MAGTF headquarters and traditional unit headquarters has been of particular concern. As Under Secretary of the Navy Robert Work noted in 2002,

> By layering standing MAGTF headquarters over their old organizational structures, the Marines paid a heavy price in staff overhead. In 1989, for example, there were headquarters for Atlantic and Pacific Marine forces, three large MEFs, six MEBs [Marine expeditionary brigades], and seven MEUs. These were in addition to the three Division, three Wing and three Force Service Support Group headquarters, as well as 12 regimental and 11 air group headquarters, giving the Corps a total of 50 higher unit headquarters![43]

In general, such scholars as Dr. Eliot Cohen and Dr. Francis Fukuyama have argued that military organizations have failed to evolve over the past half-century. Specifically, Cohen compares our current organizational structure with that of General Motors in the 1950s. He notes that many successful corporations have adapted away from this traditional hierarchical model by stripping out layers of middle management and reducing or eliminating the functional distinction between management and labor.[44] For his part, Fukuyama points out that whereas organizations are originally created around efficient internal information flow, military organizations have not changed commensurately with advances in information technology.[45] Opportunities exist to create flatter organizations, with more emphasis on the capabilities of smaller operational units.

As mentioned previously, the Force Structure Review Group concluded correctly that the Marine Corps "sweet spot" with respect to the joint force lies between a traditional army unit (regiment) and a special operations team (platoon). Therefore, the Marine Corps should emphasize the company and battalion levels. The goal of any effort to reorganize the operating forces must be to preserve actual war-fighting capacity; an inefficient system should not be maintained solely for the sake of officer career development or tradition. The fiscal issues facing the Marine Corps should force its leadership to make organizational changes that reflect increased emphasis on smaller-unit operations and eliminate redundancy. To this end, two approaches should be considered.

Horizontal Realignment. As the Marine Corps shifts to operations at the battalion and company levels, the need for headquarters at the regimental and group

FIGURE 7
NOTIONAL MEF HORIZONTAL ALIGNMENT
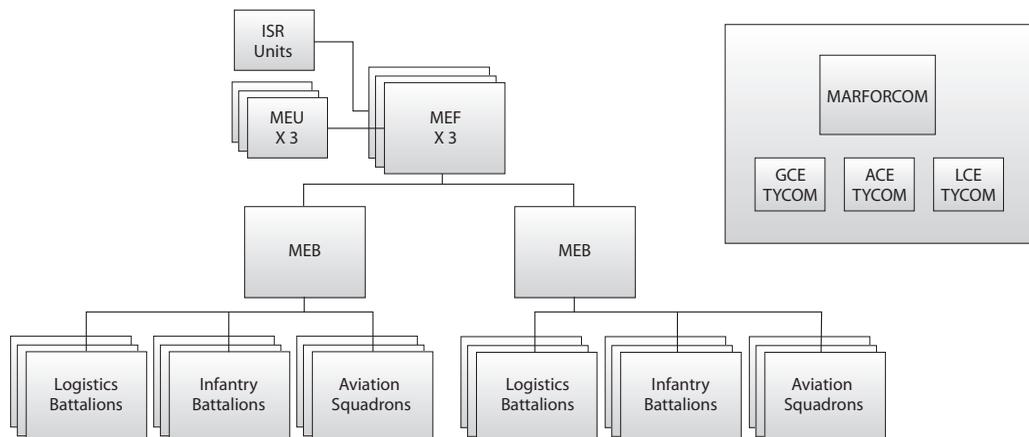
Notes: TYCOM = type commander; ISR = intelligence, surveillance, and reconnaissance.

levels and above comes into question. Could an entire level of command be eliminated with no effect on operational capability? For instance, could regiments and groups (which are commanded by colonels) be eliminated, leaving tactical units to report directly to a one-star (brigadier general) command?

Eliminating the regimental headquarters from the three active Marine divisions could yield a reduction of between seven hundred and a thousand personnel in the ground-combat element alone. Extrapolate this process across the aviation and logistics elements, and the personnel savings could reach three thousand. If wing, division, and logistic group headquarters were included, the total could approach five, even seven, thousand.

To ensure consistency across the operating forces, the equivalent of "type commanders" for each of the three combat elements should be created (responsible for training and readiness functions unique to ground, aviation, and logistics elements, respectively). A single office for each discipline would be embedded within Marine Forces Command. The flexibility of this approach would rely heavily on the service's inherent ability to create ad hoc task organizations in response to operational demands. Figure 7 depicts a notional organizational layout.

Vertical Realignment. A shortcoming of horizontal reorganization is that if executed to the fullest extent it would violate the current statutory requirement to maintain three divisions and three wings, although there would be no loss of actual combat power. An alternative that is compliant with current legislation would be to consolidate organizations vertically. To start, merge the three Marine Expeditionary Force headquarters into two and consolidate the operating forces

FIGURE 8
NOTIONAL VERTICAL REALIGNMENT

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                          │  MARFORCOM   │
                          └──────┬───────┘
             ┌───────────────────┴───────────────────┐
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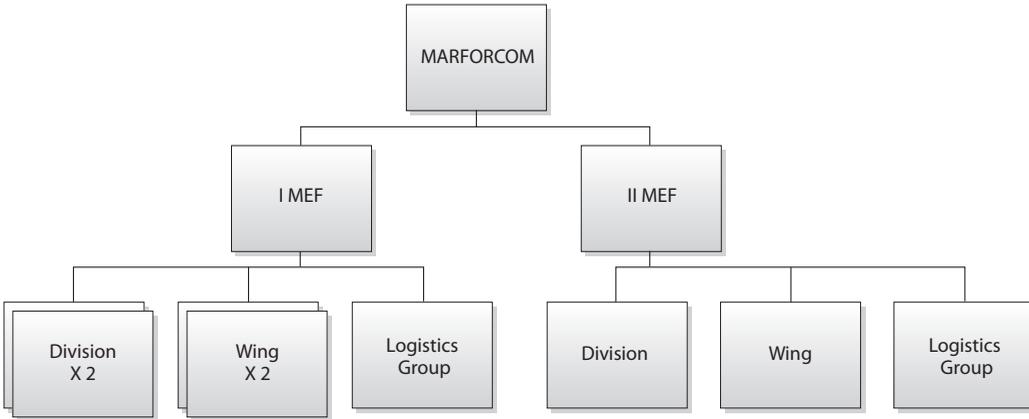
under I MEF and II MEF, as shown in figure 8. Although this would create imbalance between the two remaining MEFs, it would support the overall DoD pivot to the Asia-Pacific.

Second, identify for consolidation elements of Marine Forces Command and Marine Corps Forces, Pacific. A single Marine Corps organization is capable of responding to the force demands of each of the geographic combatant commanders.

Vertical realignment would not realize the same personnel reductions as the horizontal approach; only one to three thousand staff billets could be eliminated. But additional savings would be achieved by reductions in the overseas "footprint" and in costs of moving personnel and their households.

USE THE TOTAL FORCE

Because the Marine Corps is the smallest and most agile of the services, it has an opportunity to lower the cost associated with personnel in the active component while preserving operational capacity. The approach the Marine Corps must take—that is, total-force management—is consistent with recent changes to Title 10 of the U.S. Code.[46] Because of its cultural emphasis on readiness, the service is in an excellent position to support the new DoD-wide concept of "reversibility."[47]

Reserves at the Ready. The Marine Corps prides itself as being the nation's force in readiness. This commitment permeates the reserve component as thoroughly as it does the active component. There has been much discussion of a shift by the United States toward its militia roots in order to survive future fiscal austerity.[48] The Marine Corps Reserve provides the nation an important surge capacity, as it does not need an extensive period of time to achieve an acceptable level of operational readiness.

The Marine Corps Reserve was one of the success stories of IRAQI FREEDOM. Its members showed that they were skilled warriors and performed as advertised. They were able to muster, train, deploy, and fight not as second-stringers but as highly motivated, highly competent Marines.[49]

As we have seen, the Marine Corps is struggling to balance three identities: those of the forward-deployed amphibious force, the small-wars force of choice, and a force that fights the nation's major land wars. The majority of capabilities necessary for the third identity should be shifted to the reserve component. Tank, artillery, engineer, and aviation command-and-control units intended to support a wing-level force could be moved to the reserves without putting the nation's crisis response at risk.

"Civilian Marines." Historically the Marine Corps has done well at institutionalizing the concept of "civilian Marines" in the total-force mix. However, there are many areas where civilians can be leveraged further. Entire career fields for military personnel can be eliminated and replaced by less-expensive civilians.[50] For example, financial services, acquisition, and comptroller career fields could be civilianized entirely. According to the *2011 Marine Corps Almanac,* the Marine Corps has over 1,700 personnel in the financial management specialty alone.[51]

The Defense Department has effectively implemented the Civilian Expeditionary Workforce program, which permits civilians to deploy to operational environments.[52] Selected "civilian Marines" filling billets once held by military personnel should, as a condition of employment, be required to sign agreements stating their willingness and readiness to deploy to austere and potentially hostile environments. This practice has worked well over the past decade within the intelligence community, where civilians routinely provide forward-deployed intelligence support to war fighters.

Expanded Use of Enlisted Marines. The cornerstone of the Marine Corps is the Marine rifleman. In part due to the struggling economy, today's enlisted Marines are among the best educated and trained in the history of the Marine Corps. Some futurists predict that unemployment problems will worsen over the next several decades, as automated systems replace humans in manufacturing jobs; they estimate that 10–20 percent unemployment could become the norm in the United States for the foreseeable future.[53] Anything like such a social environment as that could present an excellent opportunity for the Marine Corps to enlist and keep better-educated civilians.

The Marine Corps should actively look for billets currently filled by officers that might be filled as well or better by top-performing enlisted personnel. Aviation fields will likely provide opportunities. From 1916 to 1981 the Navy, Marine Corps, and Coast Guard used enlisted pilots in a variety of ways.[54] Today, a large

percentage of the Army's helicopter pilots are warrant officers—clearly indicating that a four-year college degree and a commission are not required. Enlisted pilots should also form the nucleus of the unmanned-vehicle operator corps of the future.

While transitioning billets from officer to enlisted will not change end-strength numbers, it could achieve a cost savings with no loss of operational capacity. This is an essential premise for a total workforce reshaping.

MARINE CORPS AVIATION

As we have just seen, no examination of Marine Corps force structure or of overlapping capabilities within DoD is complete without discussion of Marine aviation. This has been a contentious issue since the service-unification movement following World War II, and it remains so today.

In 1976 General Robert Cushman, Jr., until the previous year Commandant of the Marine Corps, addressed the justification for the Marine Corps's having its own tactical air force. He argued that the Marine Corps represented a unique capability with its full spectrum of combined-arms integration and that if there were a reduction in its tactical aviation, the gap would need to be filled by another service.[55] Making tactical air an integral component of Marine air-ground tasks forces has unquestionably enabled effective, integrated air/ground "fires" within the Marine Corps. This integration is particularly striking in comparison to that between the Army and Air Force—a 2006 study found that despite twenty years of joint reform brought on by Goldwater-Nichols, the Army and Air Force were still having difficulty integrating their operational capabilities in Iraq and Afghanistan.[56]

Because of the austere times the nation faces, however, the Marine Corps may have to accept a tactical-air mix that is only "good enough," one that does not include high-end capabilities such as the F-35B, the short-takeoff-and-vertical-landing variant of the Lightning II multirole fighter.[57] Against the background of fiscal trade-offs that will have to occur in the future, this expensive platform comes at a high cost in terms of other Marine Corps operational needs.

An affordable mix of tactical air for direct support of smaller infantry units may be composed of rotary-wing, unmanned platforms and modified cargo aircraft—such as the KC-130J Harvest Hawk, a gunship variant, already in the Marine Corps inventory, of the Super Hercules transport and aerial-refueling aircraft. Another option to consider is to modify the MV-22 Osprey in a new gunship variant. The new mix should reflect the differing needs for fixed-wing close air support during local contingency operations and major theater operations. The Marine Corps could safely assume greater risk in the former by relying primarily on the Navy for fixed-wing close air support; again, new organizational

alignments could facilitate cooperation between Navy squadrons and Marine Corps ground units. An additional benefit would be that Navy aviators would gain valuable experience in support of Marine Corps ground units as well as SOF. In contrast, Marine fixed-wing units for the support of major theater operations could be moved to the reserve component; such operations have historically afforded some time for buildup of forces.

One commonly used argument in favor of Marine Corps tactical aviation is commonality in training among ground personnel and aviators. After a decade of supporting ground-centric operations, the perceived schism between Navy fixed-wing tactical aviators and ground units may no longer be as wide as it once was. Also, current Naval Air Training and Operating Procedures Standardization qualifications are the same for Marine and Navy aviators flying identical aircraft, ensuring commonality in close air support missions.

Finally, the Marine Corps relies primarily on aviators to serve as forward air controllers, while other services rely on enlisted "joint terminal attack controllers" to integrate air support with ground forces. Well-qualified enlisted Marines could certainly perform this function for Marine ground units.

INITIAL ACCESSIONS

Finally, as fiscal issues force the Marine Corps to consider reductions in end strength, opportunities to reduce initial-accession infrastructure will become apparent. As the demand to bring in more new enlisted Marines decreases, the service should consider closing one of the two current recruit depots and consolidating all recruit training in a single facility. The Navy successfully took this approach during the 1990s. Should the need arise for another surge of enlisted Marines—as witnessed during the Korea, Vietnam, and Iraq conflicts—temporary facilities could be constructed at Quantico, Virginia, or Twentynine Palms, California, to handle the increased throughput.

The Marine Corps maintains a regional structure for recruiting commands, with separate organizations for the East Coast and the West Coast. The recruiting-command infrastructure could be streamlined to accommodate all Marine recruiting within a single organization.

The table summarizes the options the Marine Corps should consider as fiscal pressure and the rising cost of personnel force a reduction in active-component end strength. These proposed options overlap and so should be considered individually, not in the aggregate.

Twenty years before the start of World War II, Marine lieutenant colonel Pete Ellis foretold the challenges that lay ahead for America in the Pacific. His ability to see through the fog of uncertainty gave rise to a wide array of doctrinal and

Option	Estimated Potential Personnel Changes	Notes
Naval integration	under 2,000 to 10,000	May result in increase in Navy numbers to take on additional responsibility. Total net reduction within Dept. of Navy could be achieved.
Special operations	over 1,200 to 1,800	Greater personnel reductions could be realized in other services.
Restructure operating forces	under 2,000 to 7,000	
Total-force mix	under 500 to 7,000	Includes options to reduce cost of personnel but not to change size of total force.
Marine aviation	under 3,000 to 10,000	Would increase Navy end strength.
Initial accessions	under 500 to 1,000	Includes reduction in "civilian Marines."

conceptual changes within the Marine Corps that eventually brought the successful amphibious campaigns of the Pacific War. Today's Marine Corps leaders are faced with the equally daunting task of dealing with the uncertainties of a complex and constantly evolving national security environment, challenges made more difficult by a strained American economy and a government mired, at this writing, in partisan gridlock.

The Marine Corps has a long history of maintaining a high state of operational readiness and of responding with high combat effectiveness to challenges facing the nation. The smallest of the U.S. military services, it has demonstrated great agility in adapting to and overcoming adversity, on and off the battlefield. As the Marine Corps transitions from a decade of combat operations in Iraq and Afghanistan, it will now be required to demonstrate institutional agility once again.

To remain an effective and affordable national crisis-response force, it will need to adapt to the changes in the geopolitical environment and, equally important, to fiscal realities. In doing so it must consider the thought, quoted above, of Robert Gates—that the Marine Corps has become too big, too heavy, and too far removed from its amphibious roots. By addressing these issues the Marine Corps will discover opportunities to reshape itself to achieve its "sweet spot" within the joint force.

We may argue that only as a last resort should the Marine Corps be targeted to free up defense dollars, but the reality is it will likely be caught up in an overall effort to shrink the armed forces after a decade of war. There are ways to conform to fiscal demands while not only preserving operational capacity but better preparing the Marine Corps for future operational challenges. By achieving effective

integration with the U.S. Navy, the joint force, and the special operations community; by restructuring its own operating forces; and by better utilizing its total workforce, the Marine Corps can remain America's crisis response force—ready to meet the demands of the twenty-first century.

NOTES

The author would like to express his gratitude to the three anonymous referees who provided excellent commentary and recommendations to improve the original version of this manuscript.

1. The fiscal problems facing the nation and the Department of Defense will increase pressure to reduce defense spending. At this writing, no clear, long-term solution has been identified. As I have argued in "Building the Purple Ford: An Affordable Approach to Jointness" (in the Autumn 2012 *Naval War College Review*), opportunities exist to downsize the Office of the Secretary of Defense, Defense agencies, unified commands, and the Joint Staff with no loss of operational capacity, and these should be fully considered prior to any reduction of the war-fighting capabilities of the services. This article offers options, should that approach not be taken, to streamline the Marine Corps while preserving operational units.

2. Robert Gates, "George P. Shultz Lecture" (speech, Marine Corps Association, San Francisco, Calif., 12 August 2010), available at www.defense.gov/. See also Robert Kozloski, "Of Options and Plans: A Flawed System" (blog posting) *USNI: U.S. Naval Institute,* blog.usni.org/.

3. Of the 202,441 Marines in the active component, 40,661 (20.1 percent) are in dedicated aviation specialties. Headquarters, U.S. Marine Corps, *Concepts and Programs 2010* (Washington, D.C.: 2010).

4. U.S. Code, Title 10, chap. 507, sec. 5063, available at www.law.cornell.edu/.

5. The entire planning process must pivot if it is to become effective. Planners at the combatant commands should match service capabilities to threat scenarios and develop multiple plans (vice single plans with numerous "branches and sequels") to counter the threats. This reversal of roles would provide political leaders a variety of military options in the event of crisis rather than oblige them simply to execute the plan on the shelf.

6. Thomas Barnett, "The 'Strategic Pivot' to Asia Now Committed, Pentagon Can Float Allegedly Deep Cuts," *Time Nation,* 3 January 2012. Micah Zenko notes the comments of Adm. Michael Mullen, Dr. Robert Gates, Gen. James Mattis, and Maj. Gen. H. R. McMaster on the Department of Defense's poor record of predicting the next war; Micah Zenko, "100% Right 0% of the Time," *Foreign Policy: National Security,* 16 October 2012, available at www.foreignpolicy.com/.

7. Carnes Lord, *Proconsuls: Delegated Political-Military Leadership from Rome to America Today* (New York: Cambridge Univ. Press, 2012), p. 235.

8. David Barno et al., *Sustainable Pre-eminence: Reforming the U.S. Military at a Time of Strategic Change* (Washington, D.C.: Center for a New American Security 2012).

9. Austin Long, "The Marine Corps: Sticking to Its Guns," in *US Military Innovation since the Cold War: Creation without Destruction,* ed. Harvey Sapolsky, Benjamin Friedman, and Brendan Green (New York: Routledge, 2009), p. 120.

10. William S. Lind, *The Two Marine Corps* (Washington, D.C.: Center for Cultural Conservatism at the Free Congress Foundation, 5 June 2004), available at www.lewrockwell .com/.

11. U.S. Code, Title 10, chap. 507, sec. 5063: "The Marine Corps . . . shall be so organized as to include not less than three combat divisions and three air wings, and such other land combat, aviation, and other services as may be organic therein. The Marine Corps shall be organized, trained, and equipped to provide fleet marine forces of combined arms,

together with supporting air components, for service with the fleet in the seizure or defense of advanced naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign. In addition, the Marine Corps shall provide detachments and organizations for service on armed vessels of the Navy, shall provide security detachments for the protection of naval property at naval stations and bases, and shall perform such other duties as the President may direct. However, these additional duties may not detract from or interfere with the operations for which the Marine Corps is primarily organized."

12. Barno et al., *Sustainable Pre-eminence,* p. 39.

13. David H. Gurney and Jeffrey D. Smotherman, "An Interview with General James T. Conway, 34th Commandant of the U.S. Marine Corps," *Joint Force Quarterly,* no. 59 (October 2010) [hereafter Conway *JFQ* interview].

14. Barno et al., *Sustainable Pre-eminence,* p. 39.

15. Winslow Wheeler, "With the War Ending, When Should We Look for a Peace Dividend?," *Time Nation,* October 2012.

16. Conway *JFQ* interview, p. 9.

17. Todd Harrison, *Rebalancing Military Compensation: An Evidence-Based Approach* (Washington, D.C.: Center for Strategic and Budgetary Assessments [hereafter CSBA], 2012), p. i.

18. Clark Murdock, *Planning for a Deep Defense Drawdown,* part 1, *A Proposed Methodological Approach* (Washington, D.C.: Center for Strategic and International Studies [hereafter CSIS], 2012), pp. 8–12.

19. Todd Harrison, *Analysis of the FY2012 Defense Budget* (Washington, D.C.: CSBA, 2011).

20. Michael O'Hanlon, "Getting Real on Defense Cuts," *Politico,* 22 July 2012.

21. The Ellis Group was created by the Commandant, Gen. James Amos, in December 2011 to conduct a detailed examination of emerging war-fighting challenges, identify opportunities for increasing naval war-fighting effectiveness, and coordinate with naval partners. Its name recalls Lt. Col. E. H. "Pete" Ellis, USMC, an intelligence author and planner who drafted in 1921 a doctrinal publication that proved seminal for Marine Corps effectiveness in amphibious warfare in World War II. Composed of ten officers and civilians handpicked by the Commandant, the Ellis Group has five specific areas of emphasis: to strengthen naval war-fighting partnerships; to inform the combat development and integration processes; to enhance naval partnership with the U.S. Special Operations Command; to focus innovation in naval war fighting; and to develop littoral-warfare expertise.

22. Headquarters, U.S. Marine Corps, *US Amphibious Forces: Indispensable Elements of American Seapower* (Quantico, Va.: Ellis Group, 2012), pp. 7–9.

23. David Berteau and Michael Green, *US Force Posture Strategy in the Asia Pacific Region: An Independent Assessment* (Washington, D.C.: CSIS, 2012), p. 8.

24. Thomas Mahnken, *Asia in the Balance: Transforming the US Military Strategy in Asia* (Washington, D.C.: American Enterprise Institute, 2012), p. 17.

25. Frank Hoffmann originally coined this phrase to help explain the concept of distributed operations.

26. Robert O. Work, *The Challenge of Maritime Transformation: Is Bigger Better?* (Washington, D.C.: CSBA, 2002), p. 91.

27. Dakota Wood, *The US Marine Corps: Fleet Marine Forces for the 21st Century* (Washington, D.C.: CSBA, 2008), p. 40.

28. T. X. Hammes, *Strategic Forum 278 Offshore Control: A Proposed Strategy for an Unlikely Conflict* (Washington, D.C.: National Defense University, 2012), p. 5.

29. Colin Gray, *National Security Dilemmas: Challenges and Opportunities* (Washington, D.C.: Potomac Books, 2009), p. 200.

30. Joseph Siniscalchi, *Non-lethal Technologies: Implications for Military Strategy,* Occasional Paper 3 (Maxwell Air Force Base, Ala.: Center for Strategy and Technology, Air War College, March 1999), p. 31.

31. Wood, *US Marine Corps,* p. 49.

32. Peter Singer, "The Marine Corps Is All Right," *Armed Forces Journal,* March 2011.

33. Andrew Krepinevich, Barry Watts, and Robert Work, *Meeting the Anti-access and Area-Denial Challenge* (Washington, D.C.: CSBA, 2003), p. 32.

34. Headquarters, U.S. Marine Corps, *US Amphibious Forces,* p. 6.

35. "Charter for the Naval Board," memorandum of agreement between the Chief of Naval Operations and the Commandant of the Marine Corps, Washington, D.C., 30 May 2011.

36. See Robert Kozloski, "Rethinking 'Naval': Heresy or Fiscal Imperative?," U.S. Naval Institute *Proceedings* (July 2012), p. 34.

37. G. R. Worthington, *Riverine Warfare Study,* ser. 03/1227 (n.p.: Naval Special Warfare Command, 10 December 1990).

38. For information on the potential advantages of 3-D manufacturing for the Navy see Larry Schuette and Peter Singer, "Direct Digital Manufacturing: The Game Changer You've Never Heard Of," *Armed Forces Journal,* October 2011.

39. Jim Thomas, *Statement before the House Armed Services Committee,* 13 September 2011, available at www.csbaonline.org/.

40. Robert Martinage, *Special Operations Forces: Future Challenges and Opportunities* (Washington, D.C.: CSBA, 2008), p. xv.

41. Headquarters, U.S. Marine Corps, "Marine Expeditionary Unit (MEU) and MEU Special Operations Capable (SOC) Pre-deployment Training Program (PTP)," Marine Corps Order 3502.3B, available at www.marines.mil/.

42. For previous proposals for restructuring the Marine Corps operating forces, see Carlton Meyer, "Twelve Brigades: A Blueprint for the Future," *Marine Corps Gazette* (April 1991); Asad Khan et al., "Let's Organize and Train as We Would Fight," *Marine Corps Gazette* (October 2002); and Frank Hoffman, "Transforming for the Chaordic Age," *Marine Corps Gazette* (November 2002). Similarly, Col. Douglas Macgregor, USA, provides relevant recommendations on restructuring the Army's land forces in *Breaking the Phalanx: A New Design for Landpower in the 21st Century* (Westport, Conn.: Praeger, 1997), pp. 59–93.

43. Work, *Challenge of Maritime Transformation,* pp. 83–85.

44. Eliot Cohen, "A Revolution in Warfare," *Foreign Affairs* 75 (March–April 1995), pp. 37–54.

45. Francis Fukuyama and Abram Shulsky, "Military Organization in the Information Age: Lessons from the Business World," in *Strategic Appraisal: The Changing Role of Information Warfare,* ed. Zalmay Khalilzad, John White, and Andy W. Marshall (Santa Monica, Calif.: RAND, 1999), p. 327.

46. U.S. Code, Title 10, chap. 3, sec. 129A: "The Secretary of Defense shall establish policies and procedures for determining the most appropriate and cost efficient mix of military, civilian, and contractor personnel to perform the mission of the Department of Defense."

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53. As noted by Dr. Dennis Bushnell of NASA at the Navy Warfare Development Command Maritime Innovation Symposium, Norfolk, Virginia, 13–14 March 2012, available at www.nwdc.navy.mil/.

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55. Robert Cushman, Jr., "The Marine Corps Today: Asset or Anachronism?," *International Security* 1, no. 2 (Autumn 1976), pp. 123–29.

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SMART DEFENSE

Brave New Approach or Déjà Vu?

Paul Johnson, Tim LaBenz, and Darrell Driver

As North Atlantic Treaty Organization heads of state and government gathered in Chicago for the 2012 NATO summit, the alliance was once again faced with an abundance of issues and challenges. Initially forecasted as a brief, in-progress review of the decisions taken at the 2010 Lisbon, Portugal, gathering, the Chicago summit quickly emerged as an important crossroads moment for the sixty-three-year-old alliance. The future of the alliance's forces in Afghanistan, continued support to Libya, cyberdefense, and missile defense were but a few of the pressing issues that found their way into an ambitious agenda and the summit's final declaration. Nevertheless, it was the formal unveiling of the alliance's collective response to years of declining defense budgets and accelerating defense austerity that would quietly take center stage. This initiative, labeled "Smart Defense," was described by NATO secretary general Anders Fogh Rasmussen as a way to "build greater security with fewer resources but more coordination and coherence."[1] It consists of three basic pillars: setting strict priorities for investment, pooling and sharing responsibility for developing required capabilities, and coordinating the development within certain states of niche capabilities on which the broader alliance might rely.

As will be discussed in the following pages, however, Smart Defense is not an entirely new concept. Resource pooling and multinational capability development have been elements of alliance cost-saving efforts and capability goals for well over a decade. These previous efforts have met with only mixed success, but they do offer important lessons for how the more expansive Smart Defense approach might succeed in forging deeper defense integration as a means of building critical alliance capabilities. By establishing early procedures to ensure that shared multinational capabilities will be available when crises emerge, providing

clear capability priorities for limited defense budgets, and integrating multina-
tional capability development appropriately into defense planning, the alliance
can avoid some of the past difficulties encountered by multinational initiatives.
Successful implementation of Smart Defense will be no panacea; however, it does
promise the best hope for success in maintaining NATO effectiveness through
the budgetary issues that will face the alliance over the coming decade.

SMART DEFENSE: NEW NAME, MORE AMBITION, AND OLD CHALLENGES

NATO has been no stranger to the problems of building and maintaining re-
quired security capabilities. In the post-Soviet era, encouraging member states
to sustain viable commitments to the alliance's three strategic tasks—collective
defense, crisis management, and cooperative security—has been an inveterate
challenge.[2] The established alliance goal is for member states to spend at least 2
percent of gross domestic product (GDP) on defense, but the actual spending for
European states has dropped to an average of 1.6 percent, with a large number of
allies spending closer to 1 percent.[3] Indeed, since the demise of the Soviet threat,
defense spending among European members of the alliance has fallen by almost
20 percent overall, even as the combined GDP of these states has risen by ap-
proximately 55 percent.[4]

Add to this the persistent presence of national defense bureaucracies that
continue to give priority to the larger manpower requirements of territorial-
defense forces over smaller, more deployable formations;[5] the result has been
an alliance continually marked by capability shortfalls and a chronic reliance on
the United States to fill critical gaps. Even the successful NATO air campaign in
Libya became a testament to the capability challenges that plagued the alliance.
Though European allies delivered over 90 percent of the ordnance during the
operation, the United States provided most of the targeting, intelligence, and
refueling assets, as well as delivering to allies the precision-guided munitions
they would need to continue the air campaign when their own limited stocks
were expended.[6] This prompted ever more vocal worries that the alliance was
slouching toward either irrelevance or a two-tiered system in which the United
States would provide security guarantees while the remainder of the allies opted
for more circumscribed roles limited to peacekeeping or humanitarian-focused
contributions.[7] Indeed, Robert Gates chose the occasion of his farewell address
as secretary of defense to European allies to make the case for investment in the
starkest possible terms, arguing that "if current trends in the decline of European
defense capabilities are not halted and reversed, future U.S. political leaders . . .
may not consider the return on America's investment in NATO worth the cost."[8]
Nevertheless, as the financial crisis and public budget reductions have resulted

in projections of European defense expenditures falling by another 2.9 percent between 2010 and 2015, the outlook for NATO capabilities looks ever more dire.[9]

Against this backdrop, Secretary General Rasmussen has assumed the mantle of cheerleader in chief, encouraging allies to redouble their commitments to the alliance and its needs. Warning that the "fundamental challenge facing Europe and the alliance as a whole . . . [is in] how to avoid having the economic crisis turn into a security crisis," Rasmussen has led NATO's response to growing austerity. His approach has been to acknowledge the obstacles to defense spending in an economic downturn while calling for attention to spending priorities, the advantages of states pooling limited resources to invest in agreed-on collective capabilities, and the potential of assigning some capabilities for development only by certain allies.[10] Given that European allies' defense spending remains 60 percent that of the United States and about three times that of the next largest spender, China, the concept of pooling resources for needed capabilities rather than spreading them redundantly across twenty-six sovereign nations has a compelling logic.[11] This is especially true as defense budget reductions suggest the need to deconflict such divestment so that the same capability does not suffer everywhere. Smart Defense's somewhat collectivist approach to meeting capability demand has sought, then, to answer the challenge of defense austerity with ever more thorough alliance defense integration. Yet Smart Defense has not been without its detractors.

The primary criticisms are based on two defining and potentially fatal problems. First, many nations have been reluctant to reduce the scope of their defense investments, despite declining budgets. Smart Defense, in varying degrees, requires states not to prepare for the full range of contingencies that could threaten the security of each but rather to concentrate on a narrower set of capabilities. It would not be individual states but NATO, as a collective alliance, that would be capable of defending nations across the full range of potential threats. This requires a significant degree of trust among allies that none will be abandoned in time of national need or, equally problematic, entrapped into participation in NATO missions that run counter to perceived national interests.[12] The challenge lies in how to assure the availability of a multinationally developed and fielded capability when there are as many potential vetoes of its use as there are participants. The case of Libya is illustrative of the kinds of difficulties that might be incurred in an alliance with so high a degree of security interdependence. Only nine of twenty-eight members were prepared to attack ground targets; only two (Britain and France) would assume the risk of employing attack helicopters; and Germany refused to participate in the operation altogether.[13] Under such circumstances, capabilities pooling and niche specialization could result in either an inability to field critical multinational capabilities or a few nations blocking mission approval altogether for fear of being pressured to participate.

For these reasons, states have historically been extremely reluctant to cede national sovereignty and autonomy on matters of security and defense. The European Union (EU) example is informative. Despite their relatively rapid movement toward economic integration over the last two decades, EU member states have been cautious on integration of their security sectors. The EU's Common Security and Defense Policy promised to focus on the relatively benign purpose of developing a "distinctive civil-military approach to crisis management," but achieving state commitment for the required integration of capabilities in the face of diverging national interests has proved much more difficult.[14] Persuading European states to trust more thoroughly in the benefits of greater defense integration will be no easy task. As has been argued, there is "a great contrast between the cooperative way in which European countries fight wars, and the insular way in which most of them prepare for them."[15]

A second major criticism of the Smart Defense initiative is that it has been tried before, with mixed success. To be sure, the ambitiousness of the Smart Defense initiative is novel, but the concepts of resource pooling, capabilities sharing, and niche specialization have been around for several years. The Defense Capabilities Initiative (DCI), which grew out of the 1999 NATO Washington Summit, is illustrative. A continuation of earlier, smaller efforts dating back to 1970 to address the growing military and capabilities gap between the United States and the rest of NATO, DCI was intended to be a first serious step in identifying the core capabilities nations would need to bring to alliance operations and then seeking commitments from states to procure such capabilities.[16] The initiative laid out several broad categories for future NATO defense-capability development: engagement and survivability; deployability and mobility; sustainability and logistics; and command, control, and communications. Under these broad headings, fifty-eight short-, medium-, and long-term capabilities would be addressed over two years through NATO's planning process.[17] It was an ambitious undertaking, but at the time optimism and support for change were on the rise. The initiative garnered wide endorsement, and allies expressed a particular desire to address command-and-control, deployability, and readiness shortfalls highlighted by the recent Balkan campaigns, which were still fresh in the minds of many.[18] Indeed, soon after the DCI agreement the alliance was able to point to positive movement: nearly two-thirds of the fifty-eight capabilities were being included in the current year's "Force Goals," representing "a clear indication of DCI's success in its early stages[,] . . . which will move the DCI from being a one-time initiative to becoming a fully integrated part of NATO's force planning process."[19]

The aspirations of the Washington Summit soon encountered the fiscal and bureaucratic realities in allied capitals. Only ten months after the DCI agreement, William Cohen, then the U.S. secretary of defense, complained that very

few nations had made any real headway toward procuring DCI capabilities.[20] It would soon become apparent that DCI was overly ambitious and lacked the teeth it needed. It required from signatories no firm national commitments or deadlines, and few nations were prepared to forsake sovereign defense interests and priorities to honor the "spirit" of the accord.

In response to the shortcomings of DCI, the 2002 Prague Capabilities Commitment (PCC) looked to more specific, quantifiable goals and recognized more directly "the role of specialization, or niche capabilities," especially for new members of the alliance.[21] Similarly, it placed "greater emphasis" on "multinational commitments and pooling of funds," to enable "smaller countries to combine resources to purchase hardware that would be unaffordable for each alone."[22] As a result of this new approach, by the summit in Bucharest in 2008 NATO could point to some modest successes. The Netherlands had led a group of nations in pooling financial resources to convert conventional bombs into more modern smart munitions; Germany was leading a consortium of nations to acquire much-needed strategic air transport; and the Czech Republic was leveraging its expertise in chemical, biological, radiological, and nuclear response to assume the lead in this niche capability.[23] Indeed, in the closing declaration of the Lisbon Summit in 2010, heads of state and government tasked their defense ministers to "work on multi-national approaches and other innovative ways of cost-effective capability development."[24]

Thus, in successive broad commitment initiatives there has been a clear expansion of efforts to encourage greater multinational cooperation as a means of addressing critical alliance capability shortfalls. In this sense, there is a good deal of truth to the argument that "Smart Defence . . . appears as little more than a new attempt to implement an old idea."[25] Nevertheless, lack of originality is no fault in itself. At issue is the degree to which earlier multinational projects have been able to deliver improved capability for the alliance. On that score, reviews have been mixed. While successful examples of multinational capability development are clearly present, enough challenges have plagued earlier efforts to warrant careful attention to the question of how such obstacles might be overcome in the future.

AVOIDING DÉJÀ VU: LESSONS FOR SMART DEFENSE AND THE FUTURE OF NATO

Though Smart Defense is still very early in its transition from concept to implementation, there are existing examples of multinational-capability collaboration that can offer useful insight. Some of these cases are explored below: the Benelux (Belgium, Netherlands, and Luxembourg) Deployable Air Task Force (DATF), the Strategic Airlift Capability (SAC), the NATO Airborne Early Warning and Control (NAEW&C) program, and NATO Special Operations Forces. These

cases suggest the importance of fixing responsibility by clearly assigning national "leads" for each program, the advantages of ensuring that a project's participating nations share similar strategic interests and cultures, and, most important, the critical need to ensure that capabilities developed through multinational cooperation will be available for NATO employment when the need for them arises.

The Deployable Air Task Force

One of the most successful pre–Smart Defense collaborative initiatives to date has been the Benelux DATF. The task force has its roots in a pooling and sharing arrangement of the 1970s in which Belgium and the Netherlands, together with Norway, jointly purchased the Lockheed F-16A and F-16B fighter. Formally founded in September 1996, the DATF initially comprised Belgian and Dutch air force components and a deployable ground-security force from the Luxembourg army. Faced with small and diminishing defense budgets, the Benelux states sought to leverage geographic, cultural, and security similarities to provide deployable air "packages" for alliance operations that they could no longer support individually. Born, then, of budgetary necessity, cultural familiarity, and shared strategic interests, this partnership has produced flexible and scalable air-capability packages for a broad range of potential operations.[26] Since 2004, other NATO member states with F-16s, as well as C-130 transports—Norway, Denmark, and Portugal—have joined the DATF. In fact, DATF would prove one of the few bright spots for European involvement in the air campaign against Serbia in 1999, flying about 12 percent of all allied fighter missions, at a 95 percent readiness rate.[27] Indeed, in light of the readiness rates achieved over the life of the F-16 partnership between the U.S. Air Force and the European Participating Air Forces, the Netherlands, Denmark, and Norway are looking to extend cooperation through joint purchase and collective training and maintenance programs for the next-generation F-35 Lightning II.[28]

More recently, the DATF has seen successful service in Afghanistan, expanding its capabilities over the years to include command and control, transportation, logistics, and operational planning.[29] In April 2012 there was a further expansion of the DATF principle, with the Benelux states signing an agreement to deepen the integration of all of their armed services to include training, exercises, and the shared use of each state's airfields. Of the arrangement, Pieter De Crem, the Belgian defense minister, observed that the participating states were "headed towards a completely new structure, with tri-national command[,] . . . a first step towards full integration of material and towards joint deployability."[30]

Its successes and proven ability to expand cooperation have made the Benelux DATF a model for the kind of multinational programs the Smart Defense initiative hopes to foster within the alliance as a whole. Nevertheless, DATF has had

some important advantages not universally available in partnering arrangements. First, DATF was initially possible because of the participating nations' common purchase of the F-16; shared procurement of the same platform eliminated interoperability obstacles and made future, more thorough operational integration possible. Second, the involved nations shared important political ties, enjoyed a long history of cooperation, and possessed common strategic cultures. These factors become especially important when a group of nations moves to employ a capability together in an actual operation. Capabilities that are jointly *employed* are the crux of the matter—they open the door to situations in which one or more nations may refuse to participate or, worse, block employment of the capability altogether. In short, DATF is indeed an important model for future multinational projects, but the specific circumstances that contributed to its success must be allowed for if the alliance hopes to replicate its success in other projects.

SAC and the NAEW&C

Critical areas where NATO has been especially keen have been strategic airlift, airborne early warning, and airspace command and control. For this reason, ongoing capability collaboration in NATO's Strategic Airlift Capability and its Airborne Early Warning and Control programs emerge as additional models for the kind of programs Smart Defense has sought to encourage. Originated by the PCC and led by Germany, the SAC initiative is a partnership of ten member states and two participating nations of the Partnership for Peace to share the cost of needed strategic airlift. SAC has been in operation since 2009 and is manned by personnel from all partner countries, operating leased U.S. C-17s out of the Pápa Air Base in Hungary. It is complemented by a second initiative, the Strategic Airlift Interim Solution (SALIS), which operates under contract for six Antonov An-124-100 transport aircraft.[31] In both SAC and SALIS, participating nations are allocated flight hours that they can use for their own priorities, including their contributions to NATO missions and operations. The intended long-term solution is the purchase of Airbus's new A400M, though the delivery of that aircraft has been delayed repeatedly by developmental setbacks.[32] The A400M problems notwithstanding, multinational air heavy-lift has demonstrated the potential of cost sharing and multinational burden sharing in otherwise prohibitively expensive programs.

NAEW&C is one of the longest-running and arguably the most successful of the alliance's pre–Smart Defense collaborations. Started in 1982 and based in Geilenkirchen, Germany, the program today fields seventeen E-3A aircraft to fulfill NATO's early-warning and control requirements. The unit is manned by personnel from sixteen countries and has supported operations in the Balkans, Iraq, the United States (post-9/11), Afghanistan, and most recently Libya, as well

as a long list of major international events. The unit is commanded by alternating German and American commanders, with the deputy commander generally coming from the British Royal Air Force. NATO has established forward operating bases and forward operating locations for its Airborne Warning and Control System (AWACS) in Italy, Greece, Turkey, and Norway. With this long history of support to alliance operations, NAEW&C is routinely cited as a mature example of how pooling and sharing can yield an enduring capability.

The alliance would be wise to look carefully at the successes and challenges of these programs as it considers future large-investment, multinational initiatives. Both have demonstrated the value in sharing investment in capability areas where no single nation has the budget or need to pursue the capability alone. They have also demonstrated the importance of having core groups of "lead" nations and central stakeholders to keep programs moving and to champion them from procurement to implementation. NAEW&C, however, is unlike SAC and SALIS in that it is a collectively employed asset, whereas in SAC and SALIS flight hours are distributed among nations, which decide individually how to use them. Past refusals to participate in collective-asset operations—or, worse, vetoes of asset use—have revealed the enormous risks to the availability of multinationally operated and employed assets. At one point in 2003, owing to objections by France, Belgium, and Germany, Turkey was denied access to NAEW&C aircraft just before the Iraq war, and German objections would subsequently delay the aircraft's deployment in Afghanistan.[33] Germany later would withdraw its AWACS aircrews from the Libya operation, delaying employment there until German crews could be shifted to Afghanistan to free other nations' crews for Libya.[34] Perhaps more troubling, Canada's announcement that it would withdraw from the program altogether by 2014 puts in question the sustainability of multinational programs.[35] Thus, for an alliance in which "coalitions of the willing" may increasingly characterize future operations, multinationally employed capabilities bring with them an entirely new set of complexities.

NATO Special Operations Forces

NATO Special Operations Forces (SOF) represents one of the most comprehensive examples of multinational capability collaboration. Until recently, NATO SOF was an ad hoc mixture of the SOF forces of twenty-eight nations, with no real coordination and integration. The NATO SOF Transformation Initiative (NSTI) was begun in 2006 to address persistent interoperability problems. To improve SOF employment, a variety of efforts have since emerged, including the establishment of a NATO SOF Coordination Centre (NSCC) in the NATO Special Operations Headquarters and the development of common SOF doctrine, procedures, and, to a more limited degree, equipment, through the NATO SOF Training and Education Program.[36]

The NSCC has rapidly become a model for the transatlantic SOF community, bringing together representatives from each of the partner nations to coordinate, plan, train, and exchange best practices. Although this center has no command authority, it has become valued for its high level of return in shared SOF training, education, and integration. The success of the NATO SOF initiative prompted Admiral William McRaven, commander of U.S. Special Operations Command (USSOCOM) and creator of the NSCC concept, to offer the NSCC as a model for regional special-operations coordination centers.[37]

The experience of NATO SOF suggests that linking capability development to a clear NATO mission has important advantages. Rather than have a broad range of disassociated national capability development, it can be advantageous to cluster needed capabilities under the missions within which they might be employed and then organize collaborative groups around those missions. The SOF example is particularly instructive here. SOF is a mission area in which participants from disparate nations share cultural affinity derived from its unique function. Similar communities of practice might be leveraged in other areas —cyberdefense and stabilization/reconstruction, to name but two. However, mission-focused organization does not address the critical issue of availability, especially the withdrawal of key nations on the eve of an operation. Indeed, organizing capability development into mission-focused domains may increase the quality of resulting capabilities but make it even more likely that lack of political consensus will undermine eventual employment.

IMPLICATIONS FOR SMART DEFENSE

The above programs represent but a few of the multinational initiatives that predate the current Smart Defense discussion. They remind us that multinational capability development did not spring fully formed from the head of Secretary General Rasmussen in 2011, and they provide the alliance an opportunity to take stock of the challenges that Smart Defense poses. The most important of these challenges is that of ensuring the availability of multinational capabilities for alliance missions. As the previous cases indicate, Smart Defense offers much promise for projects where employment is not contingent on unanimity, where shared procurement of platforms eliminates interoperability problems, and where use is easily divisible among participants.

Additionally, where capability employment is in fact contingent on the agreement all of the participants, we know from the Benelux DATF example that similarity in strategic cultures and security interests can be an important foundation for that agreement. As an instructive example, analogous global interests and similar histories of global military presence served as the basis for a 2010 Franco-British treaty on military cooperation.[38] While such cultural affinity will

not ensure political agreement on capability employment, it can limit the risk that a partner nation will block a particular use because of predictable political differences.

Ultimately, however, if NATO is going to rely more heavily on multinationally employed capabilities in the future, clearly agreed guidelines will be necessary. These guidelines will especially need to acknowledge the likelihood that not every nation will agree to participate in every operation. They will also need to address how such a shared capability is to be addressed within NATO defense planning. In short, the issue of assured availability will need to be tackled before Smart Defense can achieve the significant impact envisioned by its proponents.

Beyond the immediate and overarching question of availability, earlier multinational initiatives also attest to the value of fixing responsibilities within projects and clearly identifying nations to lead them. SAC and AWACS, in particular, have benefited from having core groups of nations committed to the projects and seeing them as crucial to their respective security interests. The importance, shown by experience, of clear linkage between multinational projects and the requirements and interests of their participants suggests that top-down, alliance-directed Smart Defense initiatives are less likely to be effective than bottom-up initiatives, proposed by the nations themselves. Consequently, as NATO Headquarters looks to integrate Smart Defense more fully into its defense planning processes, it should look to do so from a position as facilitator, rather than attempting to direct cooperation by decree. By establishing clear capability requirements, allocating national capability targets so as to meet those requirements, and providing nations the framework and support they need to explore multinational capability solutions as required, the alliance can set the conditions for successful cooperation. But it cannot mandate it.

Finally, the lessons of DCI and PCC have shown that overly ambitious or abstract capability initiatives often succumb to collective-action complexities. DCI was found wanting largely because it set goals without fixing responsibility. PCC set more specific capability goals but has been burdened by the ambitiously large set of capabilities it set out to advance in a future of declining budgets. Consequently, Smart Defense will need to adhere closely to its own first principle of prioritization. This will require the alliance to identify the more limited set of critical capabilities it will require in future contingencies and to set the conditions for potential multinational cooperation in achieving those goals. In short, as budget austerity strains an alliance already plagued by defense underspending, NATO will need to focus resources on the most pressing priorities in areas where the most significant gaps exist.

Fortunately, the alliance is beginning to recognize these imperatives. There is growing appreciation that "clustering" capabilities around mission areas that

focus smaller groups of states in meaningful ways is important. The topic of clustering emerged as early as 2011, in a speech by Secretary General Rasmussen to the Munich Security Conference.[39] Since then, the concept of mission-organized-and-focused capability development has surfaced within NATO's Allied Command Transformation (ACT). Together with National Defense University, in Washington, D.C., ACT has begun to explore the concept of "mission focus groups," by means of which critical missions would be established with allies afforded the opportunity to lead efforts.[40] Moving to mission-focused clusters of NATO allies will not be easy. In fact, it will not even be desirable unless satisfactory methods of dealing with capability availability are found. Nevertheless, as the above examples demonstrate, there exist viable models, and the principle will likely become more attractive as defense budgets continue to contract.

Similarly, the alliance has begun a complementary effort to Smart Defense, the Connected Forces Initiative. The purpose is to preserve the operational ties between allied militaries that have emerged from ten years of conflict in Afghanistan, by expanding combined education and training programs and enhancing multinational exercises.[41] To support this effort, the United States has committed that it will, for the first time, provide one brigade combat team on a rotational basis to the NATO Response Force (NRF), the alliance's first-response force package, composed of land, maritime, and air components from a variety of contributing nations.[42] This U.S. commitment, which will include annual NATO training events for at least part of that brigade, promises both to add new energy to the NRF mission and to provide a vehicle for continued transatlantic partnering in the post-Afghanistan era.

As NATO looks to implement the Smart Defense concept, these are the kinds of integrative efforts that offer the best hope for advancing its capabilities. The alliance should rapidly look for ways to fast-track such solutions, before today's urgency to preserve and bolster needed capabilities becomes tomorrow's operational crisis. Given recent defense-budget decrements, NATO's decade-long, evolutionary approach to multinational capability development and defense integration will likely not have another decade to perfect itself.

The 2012 Chicago Summit saw the alliance take important, if tentative, steps toward dealing with its most pressing challenge, continued defense austerity. Despite Smart Defense's detractors, one can appreciate the enormous untapped integrative and cooperative potential of a twenty-eight-nation alliance that accounts for over 80 percent of global defense spending.[43] By directly tackling the issue of availability, by establishing clear priorities, and by appropriately integrating multinational capability development into existing defense planning, the alliance can avoid some of the past difficulties of multinational initiatives. "Smart Defense

initiatives" may be, as Robert Gates argued, no "panacea" for fixing atrophying NATO capabilities, but short of a dramatic and unexpected increase in the allies' defense budgets, greater and more targeted cooperation may yet be its last good hope for weathering the current economic and budgetary storm.[44]

NOTES

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TOWARD "LAND" OR TOWARD "SEA"?

The High-Speed Railway and China's Grand Strategy

Wu Zhengyu

China's maritime development having come up against pressures and challenges in recent years, the concept of "strategic hedging"—that is, pursuit of and investment in policies meant to protect the nation against the effects of geopolitical and economic uncertainty—has emerged. One of its most important proponents is Gao Bai, an ethnic Chinese professor of sociology at Duke University (in Durham, North Carolina) and the author of the article "The High-Speed Railway and China's Grand Strategy in the 21st Century" (高铁与中国21世纪大战略).[1] Professor Gao believes that the 2008 global financial crisis and the return, through its own strategic adjustment, of the United States to the Asia-Pacific region mean that China's "blue-water strategy" has come to an end. The financial crisis severely battered China's export market, which will be difficult to restore even after the crisis has subsided. America's return to the Asia-Pacific region has not only complicated China's situation in its own neighborhood but made East Asian economic integration more difficult to achieve. As Professor Gao points out, because China's economic transformation cannot be achieved in the short term, the nation must find a new way out—and a high-speed rail provides a realistic way to break through the current impasse.

The development of a high-speed rail has the potential not only to promote the integration of Eurasian economies but to prevent a reversal of globalization and gain time for China's domestic economic restructuring. A high-speed rail could also represent a hedging strategy, leading to a

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more favorable position for China in the global arena. Professor Gao stresses that such a project, a land/sea hybrid in nature, offers a measure of freedom of strategic choice: if a problem arises on the maritime front, China can develop westward and dedicate itself to the integration of Eurasian economies; if difficulties emerge on the Eurasian landmass, China can turn eastward, dedicating itself to the integration of Asian-Pacific economies. It is no exaggeration to say that the importance of Professor Gao's article is on a level well beyond that of a high-speed rail in itself. The strategy that he advocates is essentially related not only to China's present dilemma but at the same time to China's strategic choices into the foreseeable future.

There is no doubt that, China at the moment being under intense pressure, the hedging strategy that Professor Gao proposes is highly appealing. If this proposition really comes to fruition, for quite some time China will no doubt enjoy the enviable position of having the best of both worlds on the global political and economic stage. But the problem is that while Professor Gao's article is principally based on the usefulness of the high-speed rail in integrating the economy of the Chinese mainland, this proposal is not as feasible as it seems at first glance; also, and more importantly, even if it were realizable, it would not help China escape its present conundrum. In modern history, the emergence and development of the railway has indeed played an important role in increasing the power of continental countries vis-à-vis maritime countries. However, this does not mean that we must see the importance of the railway as unquestionable. In actuality, though more than a hundred years have passed since the emergence of the railway, the Chinese "heartland" mentioned by Professor Gao (he borrowed it from Halford Mackinder's *Democratic Ideals and Reality*) is still a relatively backward region. Since there exists no substantial "generation gap" between the high-speed rail and its existing precursor, the modern railway, it is highly doubtful whether the high-speed rail really has the force to "integrate the economies of the Eurasian landmass."

An even more important question is, Can the continental strategy with the economic integration of the Eurasian landmass as the core really live up to the strategic utility to which Gao refers? The answer to this involves three issues. First, can the continental strategy help China sidestep strategic contradictions and conflicts between China and America? Second, as a pillar in the economic integration of the Eurasian landmass, what impact will the high-speed rail have on Sino-Russian relations? Third, what are the possible strategic impacts of great Chinese inroads into Central Asia? In view of Professor Gao's proposed strategy relating to the direction of China's long-term development, it is necessary to explore and analyze systematically the wisdom of his hedging strategy and on this basis strive to clarify what path China should take in response to maritime pressure.[2]

THE CONTINENTAL STRATEGY AND AMERICAN STRATEGIC MISGIVINGS ABOUT CHINA

The first problem inherent in Professor Gao's "hedging strategy" is doubt as to whether the continental strategy, with the integration of the Eurasian economies as its core element, will actually lessen the current strategic contradictions and conflicts between China and the United States. The key to the answer lies mainly in America's strategic interests, as well as in the contradictory nature of present-day Sino-American strategic conflicts.

As was once true for Great Britain, the position of America in the world today as the dominant maritime power and system leader stands primarily on two pillars. One is the balance of power on the Eurasian landmass core (Europe and East Asia), and the other is global economic, technological, and military superiority. In the history of the modern world, the system leader has been without exception the leading maritime power of the era, and aside from economic, technological, and military superiority, the preservation of a balance of power in the core regions of the Eurasian landmass has always been an important means by which the system leader has maintained its power advantage or supremacy.[3] First, once a single power achieves hegemony in the Eurasian landmass core, it automatically gets hold of the necessary resources and wherewithal to challenge the existing hegemon—the dominant maritime power and system leader. That is why, throughout history, the leading maritime power and system leader has always played the leading role in checking and balancing against covetous states. Likewise, once a country achieves hegemony of the Eurasian landmass core, it has the ability to close off completely the continental market from the leading maritime power. The latter has a vested interest in maintaining an open system, requiring the political and economic doors of the system's core region to stay open for itself and its followers.[4]

In the case of America, modern technological developments have to a large extent removed the possibility of being invaded. However, a hegemonic power with control over Europe or East Asia can still threaten America's leadership of the international system. First, American values could not survive in a world in which the United States was surrounded by a hostile and powerful environment, since the challenge of hegemonic powers in Europe or East Asia could possibly force America to become a "barracks" or "fortress" state.[5] Second, American freedom and prosperity necessarily rely on an open door to the core regions of the world (especially Europe and East Asia), doors through which American economy, politics, and culture can pass. But any hegemonic state on the Eurasian continental core would be able to close off these regions completely.[6] Preservation of the balance of power of the Eurasian core region is therefore directly related to the superiority of the leading maritime power and system leader; Britain once

saw maintenance of the balance of power system in Europe as one of its funda-
mental interests; so does America today, in both Europe and East Asia, including
the latter's littoral seas.

It is for this reason that the United States today is vigilant to guard against
the rise of China, and not, largely, because China's powerful expansion or the
growth of its naval forces substantially threatens American homeland security
or the safety of the sea-lanes. The possibility of the Chinese navy whipping the
American navy on high seas does not exist and will not into the foreseeable
future. American strategic apprehensions over China mainly revolve around
the consequences should the rise of China damage the balance of power on the
Eurasian landmass. The rapid rise of China's economic, political, and military
might in the post–Cold War years, China's natural superiority in continental East
Asia and on the East Asian littoral seas (within the first island chain), and the
increasingly serious imbalance of the East Asian regional system resulting from
the rise of China have become not only sticking points, structural contradictions,
between America and China but also the fundamental complicating forces in
relations between China and its maritime neighbors. This East Asian imbalance
also serves as a major reason for deep American concern over displays of China's
naval power in recent years.[7]

All this means that America is concerned about the exponential development
of Chinese sea power in recent years not because China has the naval power to
compete effectively with America's oceanic hegemony (or for command of the
seas within the first island chain) but because that development will greatly re-
duce America's capability to meddle in the regional balance of power in East Asia
and its littoral seas. Such meddling is very crucial to the United States if it hopes
to prevent possibly military Chinese expansion and to preserve or solidify its own
hub-and-spoke alliance system in East Asia.[8]

If, however, for the purposes of strategic hedging, China begins operating in
Central Asia, not only will China's economic influence in Central Asia rise, but
China will be enabled to obtain a magnitude of political sway in there. But even
if the proposed scheme smoothly comes to fruition, the consequences will be
nothing more than consolidation of China's advantage on the continent; the im-
balance of power on the Eurasian landmass—which America has always regarded
as its crucial national interest—will be even more severe.[9]

China's move to consolidate its position in Eurasia and America's desire to pre-
serve the continental balance of power are not merely incompatible; actually, they
are diametrically opposed. In modern history, Napoleon's France and Hitler's
Germany, on the basis of the lessons from, respectively, the failures of maritime
expansion pursued by Louis XIV and Wilhelm II, turned to continental expan-
sion, but the results were the same. The maritime consequences of a continental

strategy toward Central Asia would in no way circumvent China's deepening strategic contradictions with America at sea; in fact, they might only accelerate and deepen them. America's overriding objective in East Asia in the post–Cold War era has been to prevent China's emergence as a continental and maritime power able to challenge its own superiority in the western Pacific. Strategically, America could contain Chinese expansion at sea while at the same time exerting tremendous pressure on China's vast land border, which would force China to divert precious strategic resources to the defense of the border.[10]

At least in theory, if Sino-U.S. strategic contradictions deepen further, the United States will likely adopt in the future certain measures toward China similar to those once used against the Soviet Union—containing and weakening China's strength and influence through an array of allies along its lengthy periphery. These alliances, once established, will constitute an effective complement to America's bilateral alliance system in the Pacific Rim. In an important sense, America's worry is not China's outward-oriented development; this type of development will only increase, not reduce, China's dependence on, and integration into, the international system dominated undoubtedly by the United States—one of the principal goals of America's China policy since the Richard Nixon presidency. Taking the long view, America's concern over China's future strategic orientation is that it will probably adopt a defensive position on the maritime front while adopting aggressive policies on the mainland, thus establishing a relatively closed sphere of influence into which America cannot project significant influence. In light of this, the American strategic focus will be fixated not merely on preventing China's expansion toward the sea (toward Southeast Asia) but also on preventing China from expanding on the mainland. The latter form of strategic defense in the future will likely require America to focus on powers and countries adjacent to China, especially India, Russia, and the Central Asian states.

THE DUAL CHARACTER OF THE HEARTLAND POWER

The second problem inherent in the "hedging strategy" proposed by Professor Gao is what the potential strategic impact of a continental strategy, with economic integration of the Eurasian landmass as the core, will be on already precarious Sino-Russian relations. The key to the answer lies to a large extent in the dual character, in terms of strategic orientation, of the "heartland power"—a concept that has unfortunately been ignored or dismissed by most students and observers of geostrategy in the postwar years.

As the continental power of the heartland, Russia has a dual strategic character. On the one hand, the Russians as the direct successors to the nomadic grasslands people of the heartland occupy a unique geographical position that has enabled them to apply enormous pressure on states on their periphery, by the

actual or potential threat of territorial expansion. However, on the other hand, so long as Russia does not intend to establish some form of hegemony over states on its periphery, it is also the most effective guarantor of peace on the Eurasian continent.[11] This dual character of Russia as the heartland power means that so long as it eschews the dream of a Eurasian empire, Russia and the leading maritime power should share similar, or even the same, primary strategic interests. This point has been proved more than once in modern history; Russia itself, despite longtime antagonism toward Britain previously and the United States since then, has seldom clashed directly with the leading maritime power and system leader.[12] Instead, throughout modern history Russia has always sought to make alliances with Britain, and later the United States, to fight jointly against rimland challenger states, including Napoleonic France and Wilhelm II's and Hitler's Germany, which had struggled for the hegemony over the European continent. Given the strategic character of Russia as the heartland power, it can be reasonably said that the end of the Cold War and the continuing weakness of contemporary Russia have largely restored the harmony of interest between the heartland power and the United States, as the leading maritime power and system leader. The nexus of this strategic uniformity is prevention of the rise of and any challenge from a great power located on the rimland. Such a challenge would apply a great deal of pressure not only on the United States but also, given its unique geostrategic position, on Russia.

In fact, in its opposition to European integration and eastward expansion before and after the end of the Cold War, we can see Russia's concerns. During the Cold War there were two strands of thinking to the Soviet Union's policy toward Western Europe policy—opposition to America's military presence in Western Europe and to multifaceted integration tending to convert Western Europe into an independent power center. In the context of the Cold War, that fact that these two strands of thinking were separate was not obvious; after the Cold War, however, Russia's opposition to the eastward expansion of the European Union and to America were no longer linked, as they had been. The former exists essentially to prevent the emergence of a unified Europe, with Russia left on the outside. This policy does not involve hegemonic intentions but rather seeks to avoid a new type of imbalance.[13] Similarly, Russia is also vigilant against the post–Cold War rise of an independent power center in East Asia. From the geostrategic perspective, Central Asia and the Far East have significance for Russia equivalent to that of Latin America for the United States. The Soviet Union's policy toward Japan before and during World War II and, during the Cold War, its stationing of millions of troops on the Sino-Soviet border in disregard of the tremendous cost vividly illustrate Russia's vigilance over the situation in the East Asian continent. With

history in mind, it can be argued reasonably that Russia today should share some of America's worry at China's rise. Given that Central Asia and the Far East have always constituted Russia's soft underbelly, the possible spillover effects inherent in China's tremendous population alone, regardless of other elements, would represent a great potential challenge in Russian minds.[14]

Like European countries facing the Atlantic, China is a land/sea hybrid power, with one side facing an open ocean and no insurmountable obstacle on its land frontiers. This type of country usually faces a basic dilemma in terms of its choice of strategic orientation—that is, whether toward land or toward sea. Such countries, under pressure from both land and sea, are often exposed to a double vulnerability. Since the Opium War in 1840, China has over the long term been both weak and poor, to a large extent because pressure has come from both sea and land. In the modern period, China has only twice temporarily escaped this strategic dilemma—once during the Sino-Soviet alliance in the 1950s, and again since the 1990s and the collapse of the Soviet Union. The present reprieve has in recent years made it possible for China to concentrate on developing a maritime capability. From a macrohistorical perspective, it is of paramount, inestimable importance for China to develop and maintain as cooperative a relationship with Russia as possible, not only for China's seaborne export-oriented economic de-velopment but also to avoid attack from both land and sea, because China faces significant strategic pressure on the maritime front.

It is for this reason that the high-speed rail links integrating Eurasian econo-mies to which Professor Gao refers may under no circumstances come at the expense of the painstakingly reconstructed relations between China and Russia. This point similarly means that for China to make inroads into Central Asia to promote Eurasian economic integration without securing Russian support or at least acquiescence carries great costs and risks. Also, the possibility of failure is great. However, whether from a historical or practical point of view, it is difficult to imagine Russia allowing China to make such significant inroads into Central Asia; objectively speaking, the rise of Chinese influence in Central Asia will nec-essarily mean the reduction of Russia's, even lessening the weight of Russia's great bargaining chip with China—energy.[15] Russia may not have the wherewithal to compete economically with China in Central Asia, but that certainly does not mean that Russia will turn a proverbial blind eye to China in Central Asia. Stra-tegically speaking, the meaning of Eurasian economic integration as proposed by China is somewhat similar to that of America's "Trans-Pacific Strategic Economic Partnership" to China. These two economic-integration schemes are both con-nected with transparent political ambitions and impacts. In view of this, it is easy to imagine that if China really makes significant inroads into Central Asia, not

only will Sino-Russian relations be complicated but there may be created between China and Russia a climate of competition in Central Asia, whose results may even involve some degree of Russo-American cooperation (though not deliberate) against China.

Empirical evidence provided by history suggests that mutual vulnerability between two continental powers is usually far greater than that between a continental power and a maritime power. This point is intimately related to a maritime country's capability and interests.[16] First, for reasons of tradition and geography, maritime powers generally do not maintain strong armies, especially in peacetime, and thus rarely pose threats to the survival of other great powers. Large armies massing on borders threaten—or simply have the potential to threaten—the territorial integrity of other states in a way that naval power and economic strength do not.[17]

Second, the key to the viability of America's hegemonic position today is the nation's ability to maintain superiority in the leading economic, military, and technological fields. But this type of superiority essentially cannot be maintained through military means alone. Despite America's ability to impose its will on weaker states on some occasions, it is generally through means other than naked military force. More importantly, in terms of capabilities, the United States can hardly expect to coerce other great powers to conform to its will.[18] Since the end of the Cold War, despite unending difficulties, Sino-American relations have shown considerable endurance and flexibility. This resilience is a product not only of the two countries' economic complementarities but also of their differences in capabilities and interests. Global powers usually have a greater range of strategies for increasing their influence than solely coercive force. Such flexibility, however, does not exist between China and Russia. Not only do these two countries lack economic complementarities, but their capabilities and interests are surprisingly similar. Thus, Sino-Russian relations essentially are those of two continental great powers.

A "EURASIAN UNION" AND THE STRATEGIC POSITION OF CENTRAL ASIA

The third problem of the strategic hedging to which Professor Gao refers relates to the possible strategic impacts of China's major push into Central Asia. First of all we have to dispel a serious misunderstanding that has plagued China's foreign policy in recent years, regarding the political effects of economic development.

Since the policy of "reform and opening up," China's economy has maintained high-speed growth. This growth not only provides a solid foundation for China's rise but serves as a powerful weapon of its foreign policy. It can be said that the significant achievements of contemporary China's foreign policy and the rapid

development of its economy are more or less intrinsically linked. However, there are very few "one size fits all" truths in the world, and no policy in international politics is effective in every situation. Rapid economic growth, with resulting boom, has provided China with a powerful political lever in East Asia. However, the political influence that can be sought through economic advantage is inherently limited, and once this limit is exceeded, efforts may actually be counterproductive. In recent years, the disparity between political relations and economic links in East Asia (including Northeast and Southeast Asia) has vividly proved this point. To some extent, it can be said that today East Asian countries' strategic and political dependence on the United States is largely aimed at offsetting the political and strategic consequences, or even risks, of their economic dependence on China.[19] From this perspective, it can be reasonably expected that as economic integration between East Asian countries and China deepens, their dependence on China's economy will deepen as well, and their political and strategic dependence on the United States will become increasingly serious.

To a large extent, this logic also applies to Central Asian countries—that if China increases its economic penetration of Central Asia, that region's countries will likely, in the interest of maintaining political and strategic autonomy, opt to strengthen strategic cooperation with other powers as a means of hedging against political risks caused by economic dependence. That is to say, Chinese inroads into the Central Asian region may probably create another instance of separation between political relations and economic links. Strictly speaking, that separation, which is now widespread in East Asia, does not come as a surprise; according to the logic of an anarchical system, it is the normal reaction of weak countries facing strong and rising neighbors.[20]

From a strategic standpoint, China, being a "land/sea hybrid power," at least in theory, is likely to project its political and economic expansion in two directions —one toward Southeast Asia, the other toward Central Asia. These two regions are not merely increasingly reliant on China for economic well-being; more importantly, since the end of the Cold War they have been marked by a kind of power vacuum.

Southeast Asia's power vacuum is at present being swiftly and effectively filled by U.S. efforts to return Southeast Asia to the American embrace, along with the constant expansion of two potential powers in the region, India and Japan— although Southeast Asia and mainland China are culturally and economically joined at the hip. In an important sense, this is the basic motivation underlying America's unrelenting efforts in recent years to stir up trouble and discontent in Southeast Asia.[21] Historically, in contrast, America's influence in Central Asia has been limited; this region has traditionally fallen within Russia's sphere of influence. However, since the end of the Cold War, Russia's persistent weaknesses

have created great political uncertainty in Central Asia. In some sense, the power vacuum now existing there is not only favorable to the possible revitalization of Islamic extremism in this area but also, given Central Asia's abundant resources, hugely tempting for China, which has been seeking all over the world the natural resources necessary to maintain its high-speed economic development.[22]

Corresponding to America's new rebalancing policy in Southeast Asia, Russia is at present stepping up the pace of its own return to Central Asia. On 3 October 2011, in an article in *Izvestia,* Vladimir Putin, then the Russian premier, proposed a "Eurasian Union." On 18 November 2011 a formal agreement was signed among Russia, Belarus, and Kazakhstan formally establishing a Eurasian Union by 2015. Putin's initiative is not purely economic; its political meaning is very clear. A Eurasian Union formed along China's northern border will resemble the former Soviet Union as a political and economic entity. In this sense it will be strikingly similar to America's efforts in Southeast Asia in recent years, both being strategic moves, almost identical in nature. This strategic move by Russia to fill up the power vacuum in Central Asia means that Chinese pursuit of economic integration of the Eurasian landmass by a push into Central Asia would, instead of offsetting the great pressure on the maritime front, probably stimulate strongly unfavorable, even antagonistic, reactions from Russia. In fact, only a basic understanding of the strategic implications of a Eurasian Union allows us to understand why China cannot expect to achieve the so-called hedging goal by pushing into Central Asia.[23]

Generally speaking, the Eurasian Union will have two negative consequences for China: a serious constraint on access to energy from Central Asia and a substantial hollowing-out of the Shanghai Cooperation Organization.

Contemporary China's high-speed economic development has created a serious problem for it—increasing dependence on foreign sources of energy. The Middle East is the principal source of imported energy today, but the political situation in the region is complex, its countries have intimate ties to the United States, and, even more importantly, control of the sea-lanes on which China's imported oil flows remains in American hands. All of this makes Central Asia and Russia irreplaceable for China's energy security. Once the Eurasian Union as advocated by Russia comes to fruition, China will still wish to obtain energy from Central Asia but will likely pay a much higher price than in the past. The Sino-Russian energy game essentially hinges on Central Asian countries. So long as China can access energy at a cheaper price from Central Asian countries than from Russia, Russia will not be able to challenge China on the energy question. But once Russia and Central Asian states take a united approach on energy issues, the loser will be China.

One of China's great diplomatic achievements since "reform and opening up" has been the establishment of the Shanghai Cooperation Organization, which comprises China, Russia, and four Central Asian states—Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. However, these Central Asian states are also all designated members of the Eurasian alliance. It is not difficult to imagine that the Eurasian Union, once formed, will not only seriously weaken China's leading role in the Shanghai Cooperation Organization but effectively empty the organization of any substance. In an important sense, the Eurasian Union as advocated by Russia is essentially a strategic hedge against the Shanghai Cooperation Organization; from the Russian perspective, China's leading role makes the organization a vehicle through which China can increase its influence in Central Asia. The Eurasian Union agreement does not necessarily turn Russia into an enemy of China, but it represents Russia's preventive strategy against China's rise and the ensuing strategic ramifications. Thus, if China really attempts to integrate the Eurasian economies by means of a high-speed railway, the project may not only produce a new pattern of political and economic separation (政经分离) but may even turn Central Asia into something of a new cold-war frontier.

Professor Gao's proposition to the effect that China, given its land/sea hybrid nature, enjoys much freedom of strategic choice implicitly assumes that the strategic contradiction now existing between America and Russia is irreconcilable. However, in the 1970s China, on the basis of its perceived national interests, could boldly break from the shackles of ideology to make an alignment with the United States in a united front against the Soviet Union. It cannot be taken for granted that in the future Russia and the United States will never stand together in common interest against China.

THE PATH CHINA'S PEACEFUL DEVELOPMENT SHOULD TAKE

As a land/sea hybrid power, China must pay close attention to two interrelated problems in determining its long-term strategic development. First, as a hybrid power, China has to strike an appropriate balance in the distribution of resources between land and sea. Second, on the basis of the balance between the two strategic directions, China also must choose between land and sea as its own long-term, leading development direction.[24]

Compared to a landlocked or island country, a land/sea hybrid power like China generally has certain obvious strategic weaknesses: one is the strategic dilemma between facing toward the land and facing toward the sea; a second is the dual pressure from both land and sea; third is the risk that resources to serve the greater national strategy can be too easily dispersed. Over the past five centuries, suffering from the unique weaknesses and constraints of a land/sea

hybrid power, China missed several precious opportunities to develop itself into a powerful, modern state. The safety and stability of its land boundary in the post–Cold War period, allowing China to concentrate its energy and resources on seaborne development, do not mean that its strategic vulnerabilities as a land/sea hybrid power have absolutely disappeared, once and for all. In fact, to ensure its long-term safety and security, China still has to find the appropriate balance between land and sea. Most importantly, for a relatively long time China will have to constrain its land-oriented activity to ensure stable relationships with neighboring powers, especially Russia.

China must establish on the basis of the land/sea balance its dominant direction of development. Modern historical experience has shown that land/sea hybrid powers, once achieving stability of their land borders, principally thereafter focus their energy on sea-oriented development. The viability of this pathway has already been proven in the past thirty years by the success of the "reform and opening up" policy. Even if the high-speed rail ultimately brings about the successful integration of Eurasian economies, the crucial point is that it cannot replace the economic benefits and social impacts of sea-oriented development. In terms of economic development, Eurasian economic integration cannot serve as a vital substitute for China's current multifaceted dependence on the markets of developed countries, nor can it replace China's dependence on the less developed markets of Africa and Latin America. Within China, the social impacts of sea-oriented development versus those of land-oriented development may be very different. These two developmental directions in actuality relate to the rise and fall of different social forces within China, in which one's loss is another's gain. This win-lose scenario is crucial to the development of China's domestic political environment.

Indeed, China's maritime-oriented development of recent years has encountered a series of major obstacles. These problems do not necessarily mean that China should abandon its maritime-dominant development direction but rather that it must optimize and improve the current development course as much as possible. One of the most significant issues in this regard is how to deal with outward-oriented development in light of dual pressures from the leading maritime great power and from neighboring states. Throughout modern history, the rimland powers that have attempted to pursue maritime transformation (especially France under Louis XIV and Germany under Wilhelm II) have failed, to a large extent because of the obvious common interest between the leading maritime power and the neighboring countries in preventing the rise of a land/sea hybrid power on the rimland.

The most important issue facing contemporary China's outward-oriented development is how to overcome pressure from neighboring states, exemplified

clearly in the challenges China has endured in recent years in the East China Sea and the South China Sea even though the Chinese government has repeatedly shown no intention of challenging the existing international order. This argument relates to the global, not regional, balance of power, though the latter is naturally the focal point of neighboring states. Strictly speaking, to dispel effectively suspicion and pressure from neighboring states, China should strive to establish a series of regional institutions, with "all hands on deck" throughout the process, not only taking the initiative in shaping a regionalized system binding China and its neighbors but tolerating participation by outside powers (principally the United States). The reason for the latter point lies in the fact that without the guarantees of extraregional powers, China simply cannot form any meaningful institutional mechanism with neighboring countries, especially second-level powers and smaller states.

Another problem that contemporary China's export-oriented development needs to overcome is pressure from the leading maritime power and system leader, namely, the United States. In addition to optimizing existing strategies, when China responds to this type of pressure it must pay close attention to creating a truly open international order, regionalized and globalized, and taking into consideration the historically formed core interests of the leading maritime power and system leader. In short, one of the core interests of the leading maritime power and system leader lies in keeping the Eurasian core regions (especially Europe and East Asia) politically, economically, and culturally open to itself as well as to its various allies and followers. Thus for the foreseeable future China must not only tolerate the participation of the leading maritime power and system leader in shaping the regional system but also establish a truly open ideology. Only in this way can China effectively lessen, if not eliminate, the strategic distrust of its long-term intentions widely held by the United States and by China's neighboring states.

NOTES

This article is the fruit of discussions between the author and Professor Ma Jun, associate researcher at the School of International Studies and Foreign Affairs, Shanghai International Studies University. On the basis of this original perspective, I made further modifications on and additions to the original argument. I express sincere thanks to Professor Ma Jun for his help.

1. Professor Gao Bai's article originally appeared in the 11 March 2011 经济观察报 *(Economic Observer),* a newspaper located in Beijing, and thereafter, along with several other articles, in the book《高铁与中国21世纪大战略》*(The High-Speed Railway and China's Grand Strategy in the 21st Century),* which was published by China Social Sciences Press (Beijing) in 2012.

2. In addition to Professor Gao Bai's article, Professor Wang Jisi of the School of International Relations, Peking University, recently published "西进, 中国地缘战略的再平衡"

[Westward: The Rebalancing of China's Geo-strategy], 《环球时报》 [Global Times], 17 October 2012. Professor Wang makes strategic propositions similar to those of Professor Gao, though through different approaches. Professor Wang Jisi also argues that China should reorient its strategic direction from the seas to land, especially to Central Asia. Although my article is aimed against Professor Gao's strategic proposition, the reasoning presented here also can be used against Professor Wang's.

3. Michael Sheehan, *The Balance of Power: History and Practice* (London: Routledge, 1996), p. 115.

4. Ludwig Dehio, *The Precarious Balance* (London: Chatto and Windus, 1963), pp. 166, 263.

5. Walt W. Rostow, *The United States in the World Arena* (New York: Harper and Row, 1960), pp. 543–44.

6. Christopher Layne, *The Peace of Illusions* (Ithaca, N.Y.: Cornell Univ. Press, 2006), p. 33.

7. Aaron L. Friedberg, *A Contest for Supremacy* (New York: W. W. Norton, 2011), p. 7.

8. Kenneth Lieberthal and Wang Jisi, *Addressing U.S.-China Strategic Distrust* (Washington, D.C.: Brookings Institution, 2012), p. 22.

9. Friedberg, *A Contest for Supremacy,* p. 7.

10. Jakub J. Grygiel, *Great Powers and Geopolitical Change* (Baltimore: Johns Hopkins Univ. Press, 2006), p. 174.

11. Nicholas J. Spykman, *The Geography of Peace* (New York: Harcourt, Brace, 1944), p. 57.

12. John L. Gaddis, *The Long Peace* (New York: Oxford Univ. Press, 1987), p. 18.

13. Michael P. Gerace, "Between Mackinder and Spykman," *Comparative Strategy* 10, no. 4 (1991), p. 356.

14. Anatoly Vishnevsky, "The Specter of Immigration," *Russia in Global Affairs* 3, no. 2 (2005), p. 161.

15. Bobo Lo, *Axis of Convenience* (Washington, D.C.: Brookings Institution, 2008), p. 97.

16. Jack S. Levy, "What Do Great Powers Balance against and When?," in *Balance of Power: Theory and Practice in the 21st Century,* ed. T. V. Paul, James J. Wirtz, and Michel Fortmann (Stanford, Calif.: Stanford Univ. Press, 2004), p. 42.

17. John J. Mearsheimer, *The Tragedy of Great Power Politics* (New York: W. W. Norton, 2001), p. 135.

18. Jack Levy, "Balance and Balancing: Concepts, Propositions and Research Design," in *Realism and the Balancing of Power,* ed. John Vasquez and Colin Elman (Upper Saddle River, N.J.: Prentice Hall, 2002), p. 143.

19. Robert Ross, "Balance of Power Politics and the Rise of China," *Security Studies* 15, no. 3 (2006), p. 394.

20. Kenneth Waltz, *Theory of International Politics* (New York: McGraw-Hill, 1979), p. 186.

21. Grygiel, *Great Powers and Geopolitical Change,* p. 174.

22. Bobo Lo, *Axis of Convenience,* p. 102.

23. Regarding the strategic impacts of the Eurasian Union, please see two commentaries on the website of *The National Interest,* nationalinterest.org: Jeffrey Mankoff, "What a Eurasian Union Means for Washington," 19 April 2012, and Nikolas K. Gvosdev, "The New Russian Empire," 16 April 2012.

24. 邵永灵, 时殷弘 [Shao Yongling and Shi Yinhong], "近代欧洲陆海复合型国家的命运与当代中国选择" [The Fates of European Land-Sea Hybrid Powers in Modern History and Contemporary China's Strategic Choice], 《世界经济与政治》 [World Economics and Politics], no. 10 (October 2000), p. 52.

ADJUDICATION

The *Diabolus in Machina* of War Gaming

Stephen Downes-Martin

C ommonly used war-game adjudication methods break down and create unreliable results when addressing novel operational or strategic problems for which we have little experience or data (for example, information warfare or a regional nuclear conflict) and when we wish to explore situations rather than educate officers about well-understood situations. The primary causes of this breakdown are, first, the incorrect assumption that adjudicators are impartial controllers instead of dominant players and, second, the design choice to make the players' decisions the game's primary output. Among the many reasons for war gaming (such as research and analysis, training, education, and discovery), this article focuses on "discovery" war games, where the objective is to find out something previously unknown about a novel operational or strategic problem, something that cannot be better discovered by other methods, such as seminars, work groups, modeling and simulation, or operations research.

There exists a wide variety of definitions of war gaming, leading to different kinds of games, including field exercises, technology-enhanced "man in the loop" arrangements where players interact with and via computer models or simulations, stand-alone computer models or simulations, and closed-form mathematical equations.[1] These categories are either too broad to be useful or focus on simulations or mathematical models that assume by definition that we understand enough about the situations being gamed to model them. They preclude the discovery of insights

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into novel situations by the open-ended exploration of competing interests. In contrast, the definition of a war game given by Peter Perla—"a warfare model or simulation that does not involve the operations of actual forces, in which the flow of events affects and is affected by decisions made during the course of those events by players representing the opposing sides"—can be used to game novel operational and strategic situations, focusing on human players and relegating technology to labor-saving devices.[2] While traditional game design focuses on player decisions, there is reason to think there are problems with treating player decisions as constituting the game's primary output and therefore the primary input data for analysis. I will argue that because of research indicating that human decisions during a game are not reliably indicative of the decisions they would make in other circumstances (no matter how similar), other approaches are necessary to extract value from research games.

Newtonian physics and the statistics of small-unit actions provide adjudication rules for determining the possible outcomes of interacting player decisions when war-gaming tactical-level attrition warfare. The adjudicators either "roll dice" (i.e., use a statistical model of some form) during deductive games to pick randomly one of those possible outcomes as the one that actually occurred, or during inductive games (described below) decide themselves which one occurred so as to force the players into situations that best address the sponsor's objectives for the game. However, for novel operational and strategic problems, we do not have the equivalent adjudication rules. In these cases the adjudicators (who usually are no better informed about the problem domain than the players) have first to decide the possible outcomes of interacting player decisions, then decide which one occurred, and then decide what information to give to the players.[3] Research shows that "people are not aware of the reasons that move them; even an introspective person with incentives to estimate how he or she would have behaved with different information cannot do this."[4] This implies that decisions made during a war game by players and adjudicators are unreliable predictors of decisions that would be made in the external (and future) real-world situation the game is attempting to explore. However, research also indicates that human beliefs are robust even in the face of contradictory evidence.[5] On the basis of this research, I will argue that beliefs that surface during a game, indicated by the decisions made by the players, should be examined as possibly more reliable predictors of what would be believed in the external world than the commonly held belief that decisions in a game can be used as predictors of what decisions would be made in the external world.

Since adjudicators make decisions not only on the possible outcomes of interacting player decisions but also on which one occurred and on what information to give to the players, they are thus in fact not only players but dominant

players—*diaboli in machina*—whose beliefs and consequent actions drive the game but whose decisions (like those of the other players) are unreliable predictors of what decisions would be made in the external real world the game is attempting to explore.[6] Unless these factors are explicitly handled in design, execution, data collection, and analysis, the game will produce results that may be seductively compelling but are ultimately unreliable.

This article proposes an approach to discovery war-gaming of novel operational and strategic problems and offers a partial example from an actual strategic deterrence and escalation war game, played in 2009. The approach is twofold: first, treat the adjudicators as players whose behavior provides critical information for analysis; second, focus design and analysis not on the decisions of the game players but on the beliefs of the players *and adjudicators* and on how those beliefs drive decision-making behaviors. Decision making by players in the larger sense, including adjudicators, is what engages and motivates the participants; the value of their decisions is in the insights they provide as to the participants' beliefs, how those beliefs drive behavior, and how the players, adjudicators, and analysts interpret and attribute importance to the situations that arise from the players' competing decisions.

Since war gaming is founded on information flows between players and adjudicators, there is significant and useful overlap in the psychology of decision making used for novel situations when adjudicating the outcomes of inductive-war-game interactions and that used when assessing live information operations. Adjudication and operations assessment both require the operator to make decisions in order to create a desired future (or avoid an undesirable one) and to anticipate future outcomes and decisions by others. The arguments in this article therefore draw heavily on those made in "Assessing COIN Information Operations Aimed at the Local Population" and on references contained therein.[7]

ADJUDICATORS ARE DOMINANT PLAYERS

Traditional attrition warfare is relatively simple to game and adjudicate. The outcomes of interactions of the decisions of game players are driven by physics (for example, external ballistics, logistic flows, time and space factors, etc.) and the statistics of millennia of small-unit actions. We know these physics- and statistics-based rules, and adjudicators use them to identify the range of what could happen as a result of interacting player decisions. Adjudicators consider moral effects to be contained within the statistics if the game is a deductive one (that is, aimed at specific implications of a general situation) and decide the moral factors themselves if the game is inductive (exploring, for instance, the operational or strategic ramifications of given specifics). In deductive war games, adjudicators essentially roll the dice using established statistics to determine

from the identified range of possible outcomes of interacting player decisions the specific outcome that will be considered to have occurred in order to place the players into a new but valid situation in which to make their next moves. Among the roles of adjudicators is that of umpires, ensuring the players do not break the laws of physics or statistics. For inductive games, however, instead of rolling the dice the adjudicators choose from the range of possible outcomes one that forces players to deal with problems related to the objectives of the sponsors. In either case, deductive or inductive, the adjudicators also decide what information about the outcome to provide each of the player teams.

Many of the novel operational and strategic problems in which we are interested do not have associated bodies of physics, case studies, or statistics on which to base adjudication. For example, what are the rules (the equivalent of "physics" and "statistics") governing outcomes of information warfare waged during a regional nuclear conflict? How many such campaigns have been fought? A reasonable answer for most of the problems in which we are interested is zero or near zero, and this means that traditional adjudication techniques, based on traditional game designs, are inadequate for them. But it is precisely such novel, dangerous operational and strategic problems that it is most important to game, given the potential costs of not understanding them as well as possible. Modern novel operational- and strategic-level problems are driven by complex interacting political, military, economic, social, ideological, and infrastructure (PMESII) effects, most of which we do not understand, or at best grasp only intuitively, and for which we certainly have no statistically valid sample set of previous situations on which to draw.

A common approach is to make available to the adjudicators advisers who are subject-matter experts in the appropriate PMESII areas. These experts draw on the established base of political-science theory and modeling to provide the best judgments possible about issues relevant to the problem being war-gamed. Even given the existence of quantitative political-science models, deductive game design makes little sense for novel operational and strategic conflict situations; there are insufficient past examples and therefore statistics to inform adjudication. These situations call exclusively for inductive gaming, in which adjudicators draw on subject-matter experts to identify the range of possible outcomes. They then decide which of these outcomes did occur, so as to place the players into situations relevant to the game's objectives, and finally what information to provide to the players.[8]

Note, however, that to force the players to solve problems of interest to the sponsors, the adjudicators have to forecast what those players might do with the information they receive. That is, the adjudicators (with their advisers) attempt

to forecast likely futures using current information. But the reason we are war-gaming in the first place is that *we do not understand* the problem or the rules that drive the situation. In a traditional war game it is the players' job to illuminate the problem with insight and understanding, not that of the adjudicators.

Adjudicators and their advisers, then, make subjective professional decisions as to the range of what could happen as a result of player decisions, make subjective professional forecasts about what players might do in the future, and make subjective professional decisions about what information to provide the players. They do all this from a knowledge base that is as flawed and sparse as that of the players in the game cells. At best, the adjudicators may have better subject-matter advisers than do the players—which if true raises the question of why the experts are not playing the game but instead are advising the adjudicators.[9]

It is clear that for practical purposes not only are the adjudicators (and their subject-matter-expert advisers) actually decision-making players but they in fact dominate the war game, given their control over who gets to know what and when. In addition, logic offers significant grounds for suspicion as to whether their expertise is or even can be adequate to adjudicate games addressing novel situations. Adjudicators and their advisers make their decisions on the basis of how they believe "the world works"—beliefs that become by definition the rules for adjudication. So the adjudicators get to decide the rules of the war game dynamically, starting from a position of ignorance, as game play proceeds. All this seems to justify a rethinking of how we game novel operational and strategic problems.

PLAYER DECISIONS ARE UNRELIABLE

A discovery war game must produce results or insights that are relevant to the external, possibly future, world. The game cannot be primarily educational or training, since for a novel situation we do not have enough information to teach or solutions to train. Therefore we look to the discovery game to provide reliable proxies of the external real-world situation. Unfortunately, research indicates that game decisions do not provide reliable predictors of the decisions the players or others would make if the situation were real.

People Cannot Predict Their Own Decisions—Let Alone Other People's. Psychology and decision-science research into the "adaptive unconscious" theory of mind indicates that even reflective people are poor at predicting the decisions they would make under different information circumstances.[10] Decisions are driven for most people in great part by the (adaptive) unconscious, which—because it is not directly observable by the decision maker—means that decision makers' ability to predict or explain how they would make decisions under different

circumstances is doubtful at best. Although people tend to recognize cognitive biases in others and to take these into account, they also tend to be convinced that their own perceptions directly reflect reality and to fail to take into account their own biases.[11] Experimentation shows that this often results in people providing incorrect explanations for their decisions while simultaneously being convinced those reasons are correct.[12] Given that the circumstances and information context of some future real world that the game is attempting to explore will inevitably be different from those of the game, it is thus at best unreasonable to assume that decisions made in a war game would be reflective of decisions made by the same people in some real-world scenario or to take seriously the reasons given by the players for their decisions, since we know that people tend to confabulate when providing reasons for their decisions. But this is precisely what we ask players to do—to imagine, knowing they are in a "war game," with the real present all around them, that instead they are in some future (or other) environment and to make decisions as though the artificial game world in which they are playing is real and to provide reasons justifying their decisions.[13] Analysts and sponsors then try to draw from the decisions made in the game conclusions about decisions that would be valid in such a future (or other) environment.

Further, if decisions made in a game are unreliable predictors of decisions made in some future world, the situation becomes worse when attempting to use game decisions as predictors of *other* people's decisions—that is, those made in a real-world situation by the actual friendly or enemy decision makers whose roles the players occupied in the game. War-game "red cells" (playing the opposition) have serious problems when they are supposed to represent other cultures. Mirror-imaging does not matter when we are interested in "Blue" (friendly) decisions in the face of Red capabilities; in such a case Red simply takes the actions most dangerous to Blue within the context of game objectives, without regard to real cultural proclivities. But mirror-imaging *does* matter when we are interested in Blue decisions in the face of Red intentions or in Red decision-making behaviors.

Obtaining experts in Red thinking brings several problems. Expatriates from countries of interest often have political agendas, are not necessarily expert in their own countries' political and military decision-making styles (how many disgruntled Americans are truly expert on the political and military cultures of the United States?), and face security-clearance issues. U.S. citizens who both are genuinely expert in foreign cultures and can obtain clearances are rare; we can only assume—not *know*—that their interpretations of foreign cultures are accurate.

Unskilled People Are Unaware of It, and Skilled People Are Overconfident. Adjudicators and their expert advisers are by definition, as we have seen, unskilled

at war-gaming novel operational and strategic problems, precisely because they *are* novel, with no statistics and case studies are few and analogical. Two effects demonstrated by psychology research combine to make this a serious problem for adjudication. First, people in the lowest quartile of actual competence tend to self-assess themselves as in the second-to-highest quartile; their incompetence is so great it robs them of the ability to realize they are incompetent. People in the highest quartile of actual competence tend to self-assess themselves within the highest quartile but slightly lower than is actually the case; they inflate their colleagues' competence compared to their own.[14] Second, research shows that older and more experienced people tend to be vastly overconfident about their ability to control events that involve chance.[15] Their successes in past situations, many of which involved elements of chance, lead them to underestimate the role of luck and to overestimate their ability to handle contingent situations.[16] This is especially true in competitive situations, where competence at bluffing can mask actual incompetence.[17] So war games addressing novel concepts get flooded with players, adjudicators, and subject-matter advisers who are not expert but confidently believe they are.

Overconfident People Believe They Already Know the Answer. In nearly all cases of scientific fraud, three risk factors have been identified as present: the perpetrators "knew, or thought they knew, what the answer to the problem they were considering would turn out to be if they went to all the trouble of doing the work properly; were under career pressure; and were working in a field where individual experiments are not expected to be precisely reproducible."[18] In war games, the first factor is likely present for senior, more experienced people—precisely the sort of people invited to be adjudicators or expert advisers—given the results of the psychology research just presented, that older and more experienced people tend to be unaware of their lack of skills in novel situations and to be overconfident. The second factor is often, though not always, present among players; the third factor is clearly characteristic of war gaming. The three risk factors for (perhaps unintended) intellectual fraud must be considered likely to be present when war-gaming novel and important operational and strategic problems using senior officers and civilians as players, adjudicators, and experts.

Beliefs Are Robust in the Face of Contradictory Evidence. Amplifying the overconfidence problem is the effect demonstrated by research that "beliefs can survive potent logical or empirical challenges. They can survive and even be bolstered by evidence that most uncommitted observers would agree logically demands some weakening of such beliefs. They can even survive the total destruction of their original evidential bases."[19] Asking someone to generate an explanation of why something is true often will strengthen belief in that "something" even after

contradictory evidence is provided.[20] In addition, corrections to erroneous evidence may actually strengthen misperceptions under some circumstances.[21] This is especially troubling when the war-game designer and analyst consider asking players for their explanations of why they and their opponents made decisions. The Central Intelligence Agency analyst community suggests four reasons for the persistence of (even discredited) beliefs; "We tend to perceive what we expect to perceive; mind sets tend to be quick to form but resistant to change; new information is assimilated to existing images; and initial exposure to blurred or ambiguous stimuli interferes with accurate perception even after more and better information becomes available."[22] Therefore I propose that beliefs identified during a war game should be used as predictors for how players (*including* adjudicators) would interpret information in the real world, and I suggest that it is these (and not the decisions themselves) that give us insight into what behaviors might occur in the real world.

Player Decisions Generate Situations of Interest in Discovery Games. An argument for the importance of situations generated by interacting decisions can be made. What if a series of player decisions creates a novel situation that can be examined to identify incentives for action?[23] Although players' decisions are unreliable predictors of future decisions in the real world and are thus not intrinsically of interest, since they cannot be used to predict real decisions, the situations that interacting player decisions generate can be of interest in a discovery game at the operational and strategic levels.[24] Consider the Japanese pre-Midway war games.[25] During these games the contingency of a U.S. carrier task force appearing on the flank of Admiral Chuichi Nagumo's force was discounted.[26] The war-game decision to posit a flanking force could not be used by the Imperial Japanese Navy (IJN) staff to predict that the United States would indeed carry out such an action. It was the contingency itself that was important, but it was the beliefs and cognitive biases of IJN leadership that dictated that this contingency was not to be considered interesting.[27] The fact that the U.S. carrier task force did indeed turn up on the flank was independent of the IJN war-game decision. The beliefs and biases that led to the contingency's being ignored should have been identified and challenged by the war-game designers and analysts, but they were not, due to the seniority of the officers holding those beliefs and suffering those biases. As research indicates, beliefs are robust even in the face of contradictory evidence, and the failure or inability to take this factor into account when dealing with senior officers during war games can have unfortunate consequences.

WHAT IS TO BE DONE?
There exists a requirement to war-game novel operational and strategic problems for exploratory and discovery purposes. However, using traditional game

design for this purpose generates two significant risks. First, adjudicators will be overconfident and underqualified and their behaviors, though critical to the game's outcome, will be neither collected nor analyzed, and second, there will be an overreliance on game decisions made by players and adjudicators in drawing conclusions about the real world under investigation, despite the evidence that such decisions are not good predictors of decisions made in the real world. Such a game is likely to produce unreliable, even deceptive conclusions.

These *diaboli in machina* must be exorcised. I propose that novel operational and strategic problems be gamed following two principles. First, explicitly treat the control cell and its adjudicators as players, whose behavior and demographics are to be collected and analyzed in the same way as those of other players. Second, shape the war game as a "signaling game," in comparing messages sent by players (including adjudication and Control), either explicitly as communications or implicitly in their actions, with how those messages were interpreted by the receiving players.[28] Since beliefs drive interpretation of information, the design should include collection of what players believe about themselves and about other players. From a player perspective, decisions serve to engage and motivate the players, but from the war-game sponsor and designer perspective they exist to force the players to confront and interpret (or misinterpret) information through the lens of their beliefs and to send messages back by their decisions or explicit communications. The substantive thread of interacting decisions made by player cells and Control generates one possible story from a huge range of possible outcomes; they are not, in and of themselves, important. However, the contingencies that arise, including decisions not taken, can be important—especially those contingencies of decisions dismissed by adjudicators in their role of dominant players. The players' *explanations* for dismissing a decision or a contingency cannot be taken seriously in a discovery game; it is the underlying beliefs and biases driving the decisions that are important, as well as the contingency itself.

Analysis of messaging—interpretation, misinterpretation, and intentions—will provide reasonable indications of beliefs and therefore predictors of how information might be interpreted or misinterpreted in the real world, which in turn drives decision making. War-game design should focus not on what decisions were made but on why they were made and not made, what messages the players intended to send by their decisions and what messages were received, what behaviors they wanted to elicit from the other players by their decisions and what behaviors they instead obtained.

The design must require that as information flows into a game cell via the control cell (as the result of adjudication decisions) players answer the following

questions (in addition to taking other, traditional player actions) about each of the other teams playing (including the control cell and adjudicators):[29]

- What are the other cells attempting to achieve, make us do, or make us believe?

- What message are the other cells sending us?

- What do the other cells believe about us?

- What do we believe about the other cells?

- What do we believe about ourselves?

When the control cell answers these questions it is in effect conducting real-time game analysis. Also, as the players (including Control and adjudicators) generate their respective decisions as a result of changes generated by other players and Control they must be required to answer the questions:

- What effect are we trying to achieve (physical effects on the other players, reactions taken by the other players, changes to their beliefs)?

- What is the message we intend to send to whom by our actions?

- What are the risks and unintended possible consequences of each action?

It has been known for players to reject a game's validity because events in the game did not conform to specific prior beliefs. So in addition to the players' beliefs about themselves and the other cells obtained during the game, it is critical to elicit from the players at the end of the game their criticisms concerning the validity of the game, along with their reasons for these criticisms. Although these are obviously useful for design improvement, the main reason for collecting this information (assuming the game was properly designed and executed in the first place) is to identify players' beliefs and cognitive biases about what they believe should have happened vice what did happen in the game, since these beliefs will in part affect future decision making.

Analysis should examine the disconnects between expectations and results, between players' beliefs about themselves and others' beliefs about themselves, and player responses to the differences between these disconnects, under the hypotheses that the beliefs driving expectations and responses are robust and therefore reasonable predictors of beliefs those players would bring to the real world and that people are poor at identifying their own real beliefs.

Psychology and decision-science research plainly indicates that traditional war-game design, specifically adjudication, puts results in serious doubt in the context of novel operational and strategic problems. The solution is to

treat adjudicators (or more broadly, the control cell) as dominant players and to focus design, data collection, and analysis on interpretation and misinterpretation of messages and beliefs instead of on decisions. A partial example of this design—a focus on messaging and beliefs—was successfully used by a war game in 2009 (see the sidebar). Although it may be onerous, time consuming, or difficult to treat adjudicators or the control cell as players and collect information from them it is required if the game is to be valid, and hence it must be part of design and execution.

Every year the Mahan Scholars (an advanced research project group at the Naval War College) and U.S. Strategic Command sponsor a strategic deterrence and escalation war game. The game, known as DEGRE, is run by the War Gaming Department of the College. In 2009 the game design explicitly followed the second of the two design principles proposed above; that is, it was conducted as a signaling war game (see figure 1) and explicitly analyzed beliefs and messaging so as to fulfill the sponsors' objectives for the game. The war-game design did *not* explicitly analyze the adjudicators and their subject-matter-expert advisers *as players.* However, the design could be easily extended to do so; the same "signaling information" could be collected from the adjudicators and their advisers as from the traditional player cells (as in figure 2). (See "NWC Conducts Deterrence and Escalation Game and Review 2010," *Naval War College,* April 2010, www.usnwc.edu/.)

FIGURE 1
EXAMPLE MESSAGE AND BELIEF GAME DESIGN BETWEEN TWO PLAYERS

Blue Cell		Red Cell
War-Game Actions		
Desired reactions by Red Blue actions	compare	Red actions Desired reactions by Blue
Blue assessments of risks and unintended consequences of Blue actions	compare	Red assessments of risks and unintended consequences of Red actions
Analysis of Possible Drivers of Actions		
Messages sent by Blue (communications and actions)	compare	Messages received by Red (interpretation of communications and intentions behind actions)
Messages received by Blue (interpretation of communications and intentions behind actions)	compare	Messages sent by Red (communications and actions)
Blue beliefs about self	compare	Red beliefs about Blue
Blue beliefs about Red	compare	Red beliefs about self

FIGURE 2
EXAMPLE MESSAGE AND BELIEF GAME DESIGN INCLUDING CONTROL AS A PLAYER

Player Cell (any "color")		Control Cell (adjudication)
War-Game Actions		
Desired reactions by control cell Player cell actions	compare	Control cell adjudication Desired reactions by player cell
Player cell assessments of risks and unintended consequences of player cell actions	compare	Control cell assessments of risks and unintended consequences of Control adjudications
Analysis of Possible Drivers of Actions		
Messages sent by player cell to Control (communications and actions)	compare	Messages received by control cell (interpretation of communications and intentions behind actions)
Messages received by player cell (interpretation of communications and intentions behind actions)	compare	Messages sent by control cell (communications and actions)
Player cell beliefs about self	compare	Control beliefs about player cell
Player cell beliefs about Control	compare	Control beliefs about self

NOTES

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1. The Joint Semi-Automated Forces (JSAF) system is an example of a distributed simulation where people interact with each other and with simulations. JSAF is sponsored by the Joint Chiefs of Staff and its program office is the Navy Warfare Development Command. The "Navy Simulation System," developed by Space and Naval Warfare Systems Command and sponsored by CNO (N6) (Support to Operations), is an example of a stand-alone Monte Carlo computer simulation system used for war gaming. For closed-form mathematical equations, see, for example, James G. Taylor, *Lanchester Models of Warfare* (Arlington, Va.: Ketron for the Operations Research Society of America, 1983), vols. 1, 2.

2. Peter Perla, "The Nature of Wargames," chap. 4 in *The Art of Wargaming: A Guide for Professionals and Hobbyists* (Annapolis, Md.: Naval Institute Press, 1990).

3. The control cell (in which the adjudication function resides) is responsible (among other tasks) for selecting a preferred outcome during inductive games, deciding how to respond to game cell player requests for information, and deciding what and when information is given to players.

4. Robert Jervis, "Reports, Politics, and Intelligence Failures: The Case of Iraq," *Journal of Strategic Studies* 29, no. 1 (February 2006), pp. 3–52.

5. Lee Ross and Craig A. Anderson, "Shortcomings in the Attribution Process: On the Origins and Maintenance of Erroneous Social Assessments," in *Judgment under Uncertainty: Heuristics and Biases,* ed. Daniel Kahneman, Paul Slovic, and Amos Tversky (Cambridge, U.K.: Cambridge Univ. Press, 1982), pp. 129–52;

Lee Ross, Mark R. Lepper, and Michael Hubbard, "Perseverance in Self-perception and Social Perception: Biased Attributional Processes in the Debriefing Paradigm," *Journal of Personality and Social Psychology* 32, no. 5 (1975), pp. 880–92; Craig A. Anderson, Mark R. Lepper, and Lee Ross, "Perseverance of Social Theories: The Role of Explanation in the Persistence of Discredited Information," *Journal of Personality and Social Psychology* 39, no. 6 (1980), pp. 1037–49.

6. The argument might be made that adjudicators' decisions relate solely to the game and not to the simulated real world and are thus fundamentally different from the decisions of traditional players. However, if the design for a discovery game of a novel situation has done a good job of recruiting the best subject-matter experts either to advise or be the umpires for that game, one might reasonably expect similar experts to be called on in some novel real-world situation as advisers. Their beliefs and actions during a game are relevant to the real world.

7. See Stephen Downes-Martin, "Assessing COIN Information Operations Aimed at the Local Population," *IOSphere,* May 2012, pp. 16–20.

8. As pointed out by Jon Compton and Yuna Wong at the 2011 Connections war-gaming conference, it is a professional requirement for war-game designers to be familiar with the political-science theory base and models in order to provide adjudicators with the range of possible outcomes and provide the adjudication cell with advice on which outcome to choose to support the sponsor's objectives.

9. There are sound reasons for placing in the control cell subject-matter expertise that is not present in the player cells. An example suggested by Robert Rubel during discussion (24 January 2013) is when one wishes to represent realistically issues (such as information operations, cyberwarfare, or logistics, for example) in the game that are not central to the problems being investigated. Given the core objectives of the game and the limited procedural and intellectual bandwidth available to the players due to the time compression of most games, expertise in these ancillary issues is deliberately restricted to the control cell in which the adjudication function is executed. The danger now, however, is that since the adjudicators are dominant players the game is now overly influenced by these ancillary issues that then dominate the core issues being explored by the players.

10. For a summary of the literature on this subject, see Timothy Wilson, *Strangers to Ourselves: Discovering the Adaptive Unconscious* (Cambridge, Mass.: Harvard Univ. Press, 2002), and Robert Jervis, "Understanding Beliefs," *Political Psychology* 27 (Fall 2006).

11. See, for example, Emily Pronin, "Perception and Misperception of Bias in Human Judgment," Elsevier *Trends in Cognitive Sciences* 11, no. 1 (January 2007), pp. 37–43.

12. Richard E. Nisbett and Timothy D. Wilson, "Telling More than We Can Know: Verbal Reports on Mental Processes," *Psychological Review* 8 (1977), pp. 231–59.

13. I claim that however realistic an operational or strategic war game, players will be aware it is not real and that awareness increases as the importance of the situation being explored by gaming increases.

14. Justin Kruger and David Dunning, "Unskilled and Unaware of It: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-assessments," *Journal of Personality and Social Psychology* 77, no. 6. (1999), pp. 121–34.

15. Most people tend to interpret "most people tend to" as meaning "everyone else but not me." This is especially true of senior, experienced, and successful people, precisely because they have been successful in the past.

16. Ellen J. Langer, "The Illusion of Control," *Journal of Personality and Social Psychology* 32, no. 2 (August 1975), pp. 311–28.

17. Dominic D. P. Johnson, Richard W. Wrangham, and Stephen Peter Rosen, "Is Military Incompetence Adaptive? An Empirical Test with Risk-Taking Behaviour in Modern Warfare," *Evolution and Human Behavior* 23 (2002), pp. 245–64. See also Eliot Cohen and John Gooch, *Military Misfortunes: The Anatomy of Failure in War* (New York: Free Press, 1990), and Malcolm Gladwell, "Cocksure: Banks, Battles, and the Psychology of Overconfidence," *New Yorker,* 27 July 2009.

18. David Goodstein, *On Fact and Fraud: Cautionary Tales from the Front Lines of Science* (Princeton, N.J.: Princeton Univ. Press, 2010). (Goodstein is vice provost of the California Institute of Technology.) See also Michael Shermer, "When Scientists Sin," *Scientific American* 303, no. 1 (July 2010), p. 34, available at www.scientificamerican.com/.

19. Ross and Anderson, "Shortcomings in the Attribution Process."

20. Martin F. Davies, "Belief Persistence after Evidential Discrediting: The Impact of Generated versus Provided Explanations on the Likelihood of Discredited Outcomes," *Journal of Experimental Social Psychology* 33, no. 6 (November 1997), pp. 561–78.

21. Brendan Nyhan and Jason Reifler, "When Corrections Fail: The Persistence of Political Misperceptions," *Political Behavior* 32, no. 2 (June 2010), pp. 303–30.

22. Richards Heuer, Jr., "Perception: Why Can't We See What Is There to Be Seen?," chap. 2 in *Psychology of Intelligence Analysis* (Washington, D.C.: Center for the Study of Intelligence, Central Intelligence Agency, 1999), available at www.cia.gov/. See also Jervis, "Understanding Beliefs."

23. Question asked by Robert "Barney" Rubel, dean of the Center for Naval Warfare Studies at the Naval War College, 14 December 2012.

24. One must, however, be careful about what defines a discovery game at the operational and strategic levels, using the definition of discovery used in this article. A tactical rehearsal that seeks to discover unpleasant downstream effects of a plan does not qualify, since the rules both for playing the game and for adjudicating the results of tactical kinetics are well established and are not subject to discovery.

25. Robert Rubel suggested this example in the cited conversation of 14 December 2012.

26. Mitsuo Fuchida and Masatake Okumiya, *Midway: The Battle That Doomed Japan* (Annapolis, Md.: Naval Institute Press, 1955), p. 97; Jonathan Parshall and Anthony Tully, *Shattered Sword: The Untold Story of the Battle of Midway* (Dulles, Va.: Potomac Books, 2007), p. 410.

27. Parshall and Tully, *Shattered Sword,* p. 410.

28. All actions send a message with the intention of that message being received and interpreted, and so when war-gaming the operational and strategic levels of war, players must design their decisions around two types of desired effect: the physical effect of an action and the cognitive effect in the minds of the other players.

29. Players usually attempt to "game," or manipulate, the control cell; game design should explicitly capture this behavior and not simply assume it away.

THE GAZA FLOTILLA INCIDENT AND THE MODERN LAW OF BLOCKADE

Lieutenant Commander James Farrant, Royal Navy

The law and operational practice of blockade were considered all but dead by many in the 1990s.[1] However, in recent years, Israel has employed blockade twice: in 2006 against Hezbollah in south Lebanon and since then against Hamas in Gaza. The latter blockade, which will be the focus of this article, was instituted in January 2009 to prevent arms and other materials reaching Hamas and thereby to halt rocket attacks against Israeli territory.[2]

In May 2010, a flotilla of six ships gathered in the eastern Mediterranean with the declared purpose of publicly breaching the blockade. *Mavi Marmara* was the largest ship in the flotilla. It carried activists from the Free Gaza Movement and the Turkish charity Foundation for Human Rights and Freedoms and Humanitarian Relief (IHH), others sympathetic to the circumstances of the people of Gaza, and numerous journalists. IHH's reputation has been described as "checkered," with reported links to Islamic extremist organizations, including Al Qaeda.[3] In a series of communications culminating late on 30 May 2010, Israel told the flotilla that unless it diverted to Ashdod, an Israeli city to the north of Gaza, and allowed its cargo to be inspected and distributed under Israeli control, personnel of the Israel Defense Forces (IDF) would board the vessels and prevent them from reaching the Gaza coast. The flotilla refused to divert; the IDF intercepted and boarded the ships sixty-four nautical miles outside the declared blockade zone.

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Five of the vessels were captured without loss of life. The case of *Mavi Marmara* was different: on that ship nine civilian activists were killed during clashes between them and the IDF boarding party.

Mavi Marmara had sailed from Turkey, and all of those killed had Turkish nationality. Turkey was a loud critic of the IDF's alleged heavy-handedness and of the blockade generally. Turkish criticism after the incident centered on the following claims: that Israel did not have the legal right to establish a blockade; that even if a blockade could have been lawfully established, on the facts it was unlawful because of the disproportionate suffering inflicted on the inhabitants of Gaza; and that in any event, the IDF boarding team used excessive force in carrying out the boarding.[4]

Three significant panels of inquiry have investigated the incident; facts found and legal conclusions reached varied greatly. Israel's inquiry was led by a justice of the Israeli Supreme Court—Justice Emeritus Jacob Turkel.[5] The Turkel Commission's report is a comprehensive analysis of the law and facts, and it attempts to adopt an objective tone. It nonetheless concludes that the Israeli blockade was lawful as a matter of international law and that the Israeli enforcement operation was in the main similarly lawful. The Turkish National Commission of Inquiry included representatives from the prime minister's office and other offices of state.[6] The weight of the Turkish report's analysis and conclusions is, in the opinion of the author, diminished because of its transparent political motivation. It concludes the blockade was unlawful and that the Israeli boarding operation (which it describes as an "attack") used excessive force. Both these reports were provided to the United Nations secretary-general, who established his own commission, headed by Sir Geoffrey Palmer, to consider the incident.[7] The Palmer report takes into account the findings of the two national inquiries and concludes that while the establishment of the blockade was lawful, the Israeli boarding operation appeared to use excessive force in dealing with the passengers and crew of *Mavi Marmara*.

Three years on, the incident remains a valuable case study, because it raises legal issues on several levels. At the grand strategic, when will the international community tolerate the imposition of a blockade, and when will states accept consequent interference with the navigational rights of vessels flying their flags? At the operational, how far from the blockaded coast should the naval commander be prepared to enforce the blockade? At the tactical, what level of force is acceptable for the individual members of a blockade-enforcement boarding party to use? This article will consider the incident anew and use it to establish some principles that might guide maritime doctrine on the future establishment and enforcement of blockades.

DID ISRAEL HAVE THE RIGHT TO ESTABLISH A BLOCKADE?

The law of blockade is part of the law of naval warfare, a body of law that does not come into effect until there is an international armed conflict (IAC)—that is, a conflict between two or more states. In contrast, a non-international armed conflict (NIAC) is a conflict between a state and an organized armed group.[8] The law of naval warfare does not apply in a NIAC, except when both the state party in the NIAC and other states not involved in the conflict have recognized the organized armed group as a "belligerent."[9]

For an IAC to exist, two or more states must have resorted to force between themselves, and the level of that force must be of sufficient magnitude to be considered an "armed conflict."[10] The Gaza situation challenges the first of these "threshold" requirements. Despite aspirations to the contrary, Palestine is not a state; neither is Gaza. That ought to be the end of the matter, but many states, aid agencies, and scholars classify the conflict in Gaza as an IAC.[11] They justify this position using three main grounds.

The first is known as the "border crossing" argument. Because the armed conflict is occurring beyond Israel's borders, it must, so the argument goes, be "international." The Israeli Supreme Court has ruled to this effect;[12] further, the Turkel Commission has classified the situation as an IAC on this basis.[13]

However, the position appears inconsistent with prior practice. For instance, Israel itself argued that the armed conflict it fought with Hezbollah in Lebanese territory in 2006 was a NIAC.[14] The United States does not maintain that its war against Al Qaeda is an IAC simply because it occurs abroad. As these examples illustrate, the mere crossing of a border does not of itself render a conflict "international."

The second is the "occupation" argument. NIACs occur primarily on the territories of the states against which the organized armed groups are fighting. Since it would be illogical to suggest that a state can occupy its own territory, occupation must be limited to *international* armed conflict. If, at the material time, Israel occupied Gaza, the conflict must have been international in character. The Turkish report concluded that Gaza was under occupation by Israel and adopted this argument.[15]

However, the premise that Gaza is "occupied" is questionable. The legal test for occupation is twofold: an absence of government or authority and the presence of a putative occupying power in a position to substitute its own authority for that of a former government (leading to a situation of effective control by the occupying power).[16] Since implementation of the policy of disengagement in September 2005, the Supreme Court of Israel has determined that Israel is no longer an occupying power.[17] Indeed, the Turkel Commission found in its report (page 52) that "the very lack of control over the land territory in the Gaza Strip

. . . is what makes an external naval blockade necessary to control access to and egress from that territory."

Others have argued that while Israel may have no permanent military presence within Gaza or any control over the elected government, it exercises such control of the territory's borders that it must be considered to have "effective control" over the whole territory.[18] They point to Gaza's dependence on Israel for such essential services as water and electricity. But dependence in any respect is not determinative of "occupation." So it is submitted here that the "occupation" argument does not lead to the inevitable conclusion that Israel and Gaza were parties to an IAC.[19]

Third is the "special case" argument. The Palmer report concluded (page 41) that Gaza is a unique case, the facts of which are unlikely to be repeated elsewhere in the world. It suggests that because the conflict has "all the trappings of an international armed conflict," it *should be treated* as one.[20] The conclusion that the conflict "should" rather than "must" be treated as an IAC could be viewed as tantamount to acceptance that it is not, as a matter of current law, within that categorization.

Accordingly, these three arguments may not between them afford a satisfactory reason to forgo fulfillment of the "states parties" criterion, and this article doubts that the conflict in Gaza is an IAC.

The suggestion that the conflict is international in character can equally be rebutted by demonstrating that it is instead non-international. The International Criminal Tribunal for the former Yugoslavia set forth in the *Prosecutor v. Tadic* case the accepted criteria for qualification as a non-international armed conflict: "a [non-international] armed conflict exists whenever there is . . . protracted armed violence between government authorities and organized armed groups, or between such groups within a State."[21]

Accordingly, whether the conflict between Israel and Hamas in Gaza in 2009–10 (the operating period of the blockade prior to the Gaza flotilla incident) was non-international depends on the existence of, first, an organized armed group, and second, protracted armed violence.

Hamas is undeniably an "organized armed group." It was sufficiently organized at the material time to be able to coordinate extensive smuggling of arms and to conduct sustained rocket attacks against Israeli territory. It seems equally uncontroversial that the level of armed violence between Hamas and Israel had been "protracted." The word "protracted" can reflect either "intensity" or "duration" or both. According to Israeli figures, in 2009 there were 692 rocket/mortar attacks from Gaza on Israel's territory and 104 in January–October 2010.[22] Estimates of deaths on either side may seem relatively low;[23] nonetheless, the sustained rocket attacks and the continued Israeli policy of targeting and killing "terrorists" in

Gaza in 2009–10 all point to a conclusion that the violence is sufficiently significant and sustained to be labeled "protracted."[24] This article concludes that at the material time there was a NIAC between Israel and Hamas.

Was it a NIAC in which Israel had a right to declare a blockade? That is, was there a recognition of belligerency? Historically, belligerent recognition seems to have been required on the part both of the relevant state-party opponents in the NIAC and of affected neutral powers, although it did not need to be express and could be implied from other acts.[25] During the American Civil War, for instance, the Union implicitly recognized the existence of a belligerency by the declaring of a blockade against the Confederacy. Other states (most prominently Great Britain) implicitly recognized belligerency when they proclaimed "neutrality"—a proclamation that would have made no sense without an implied recognition of belligerency.

Some scholars suggest that the doctrine of "belligerent recognition" has fallen into desuetude and therefore no longer reflects the law.[26] They argue that the twentieth-century NIACs in which blockades have (or blockade-like activity has) taken place do not constitute reliable state practice supporting the proposition that blockades may be established during a NIAC. In the Spanish Civil War, interested European powers sought to regulate the delivery of arms and material to the belligerents, including by sea. However, "no European state conceded to any party to the conflict any right to interfere with neutral shipping."[27] In 1956, France (when still the colonial power) established a "customs zone" off the coast of Algeria to prevent arms reaching rebel Algerian groups. But the French measures met with "sharp protests" from the flag states of the vessels boarded or diverted, and no formal blockade was ever declared.[28] During the course of the NIAC between Sri Lanka and the Tamil Tigers, the Sri Lankan government took measures under domestic law to control the smuggling of weapons and supplies into Tamil territory. These measures were taken solely within territorial waters, and so they were not a blockade.[29] The blockade enforced by Israel during its NIAC with Hezbollah in Lebanon in 2006 has been held unreliable, as its context was not "a straight-forward NIAC."[30]

As the critics suggest, the first three examples are unreliable precedent in support of the contention that blockades may be established during a NIAC. However, it is not as easy to dismiss the 2006 Israel/Hezbollah NIAC as such a precedent, since it does appear to be a recent example of a NIAC in which blockade was employed without widespread international objection.

Other scholars maintain that recognition of belligerency is still a valid legal concept, pointing out that mere lack of use is insufficient grounds for a conclusion that a concept is no longer valid as a matter of law.[31] This is the more defensible position. Applied to the facts of the Israel/Hamas situation, it means that

Israel implicitly recognized Hamas's belligerency by declaring the blockade. The attitude of the international community is harder to determine, not least because many consider the conflict to be an IAC, not a NIAC. However, this might be a reflection of the international community's view of the intensity of the conflict and of the position of Hamas as a belligerent.[32] If this is a plausible interpretation, both the state party (Israel) and third parties have implicitly recognized Hamas's belligerency in the manner that occurred in respect of the Confederacy during the American Civil War. On this analysis, it was lawful for Israel to employ blockade as a method of warfare against Hamas in 2009–10.

THE CONDUCT OF THE ISRAELI BLOCKADE

When the flotilla was intercepted, it was sailing on the high seas—that area of the ocean not within the sovereign control of any state.[33] In the ordinary course of events, vessels of every nation are entitled to enjoy the freedom of navigation on the high seas.[34] However, states that are parties to an IAC (or a NIAC against an opponent whose belligerency has been recognized) may interfere with navigational rights enjoyed by merchant vessels from other states in certain circumstances and in certain ways, including by the establishment of a blockade.[35] The phrase "merchant vessel" refers to any vessel that is not a warship, naval auxiliary, or other ship on government service. "Blockade" is the blocking of the approach to the enemy coast or part of it for the purpose of preventing the ingress and egress of ships and aircraft of all states.[36] To be lawful, a blockade must comply with a number of specific rules.

Notification. All aspects (location, duration, etc.) of the blockade must be formally announced.[37] This is usually done through diplomatic channels and "notices to mariners." The notification requirement is important, because before a merchant vessel may be held to have "breached" a blockade, the blockading state must be able to prove the vessel knew or ought to have known of the blockade's existence.[38]

Effectiveness. A blockade must also be "effective."[39] This provision in the law of blockade might seem puzzling at first sight, but it has its origins in the protection of the rights of neutrals. Found in article 4 of the 1856 Declaration of Paris, it is grounded in the neutral concern that belligerent powers not be permitted wantonly to declare "paper blockades," thereby interfering with neutral shipping, without the means or motive to enforce them. The requirement does not necessitate interception of every blockade-runner, but sufficient military resources must be committed to render ingress or egress of the blockaded area "dangerous" to vessels attempting breach.[40] The Gaza blockade was well publicized and properly notified;[41] further, there is no indication that blockade-runners routinely breached it.[42]

Position and Nature of the Blockading Force. The force maintaining the blockade may be located at a distance from the coast dependent on military requirements.[43] There is a balance to be struck between positioning the blockading force so close to the coast that it may be at risk from enemy on-shore weaponry and so far away that the blockade may fail for want of effectiveness.[44] Blockades may be enforced by whatever means are expedient, although there is some dispute as to whether a blockade may be enforced by a minefield alone. The traditional view has been that it cannot, because an unmanned blockade may risk unintended harm to, for example, a vessel in distress or one that is ignorant of the blockade and unwittingly stumbles into the minefield.[45] A second objection is that the prescribed legal penalty for breach of blockade is capture, not destruction or attack.[46] Nonetheless, the rule must be construed on the basis of its object and purpose—the prevention of unintended harm to vessels with no intention of breaching the blockade. So long as the means used to enforce the blockade are capable of the necessary judgment and distinction, there should be no breach of the law.[47] Warships were used to enforce the Gaza blockade, so the mode of enforcement should not be considered contentious.

Place of Enforcement. In addition to the question of "when" (or in what circumstances) a blockade may be enforced, there is that of "where." Although some commentators suggest that a blockade may only be enforced in the vicinity of the blockade line, others take the position that a state that has properly established a blockade may enforce it anywhere it likes, so long as it can show that the object vessel *intends* to breach the blockade.[48] European powers traditionally espoused the more restrictive position, while traditionally expeditionary maritime powers such as the United States and Great Britain took the broader view.[49] The current state of the law remains unclear. U.S. Navy NWP 1-14M, *The Commander's Handbook on the Law of Naval Operations* (July 2007) (NWP 1-14M), still expressly embraces (art. 7.7.4) the "intention" doctrine; Joint Services Publication 383, *Joint Service Manual of the Law of Armed Conflict* (2004) (the UK Manual), is silent on the issue. The *San Remo Manual on International Law Applicable to Armed Conflicts at Sea* (the San Remo Manual) also offers no view on the "intention" doctrine.

The IDF employed the doctrine to enforce the blockade sixty-four miles from the blockade line. Even if criticism based on the intention doctrine is set aside, the IDF decision allowed for criticism that the blockade enforcement was too early and therefore demonstrated excessive force. The Turkish report criticized the early enforcement of the blockade, arguing it left no room for "peaceful and non-violent alternative measures to stop the vessels."[50] The Palmer report adopted a similar position.[51] It is difficult to see why military necessity compelled the IDF to intercept the vessels so early.

Breach and Consequences of Breach. As noted above, the penalty for breach of blockade is capture. Captured vessels are "prizes";[52] they must therefore be subject to later adjudication before national prize courts.[53] Blockade commanders must tread a careful line between ensuring the blockade's effectiveness, on the one hand, and not rendering their national governments liable for compensation by overzealous enforcement, on the other. The formula most commonly employed is that a vessel may be captured if there are *reasonable grounds for suspecting* that it is breaching or attempting to breach the blockade.[54]

Obviously, crossing or attempting to cross the blockade line will constitute reasonable grounds. Equally plainly, a vessel's public declaration of intent to breach the blockade would be sufficient grounds. Loitering near the boundary of the blockaded area, failing to answer radio communications from the blockading force, failure to display night navigation lights, or other attempts at concealment would probably all constitute reasonable grounds for suspicion on the part of the blockade commander. In making the determination, a commander may presume that a vessel has knowledge of the blockade once notification has taken place.[55] In the case of the Gaza flotilla, the vessels had publicly and repeatedly declared their intention to breach the blockade.[56] If the "early enforcement" issue is set aside, there can be no doubt that the blockade force commander was within the law in effecting a capture of the flotilla vessels.

Resistance to Capture. A merchant vessel that "clearly resists" capture must be warned that it may be attacked if it persists. The legal basis for this position is that clear resistance to capture renders a merchant vessel a "military objective"—that is, a prima facie lawful target for attack.[57] "Clear resistance" is a question of fact in each circumstance, but the threshold is a high one. Mere evasion or attempting to flee (without persisting in breaching the blockade) is likely not sufficient. Firing on the blockade force or attempting to ram a blockading warship would meet the threshold. Even where a resisting vessel is a lawful target, before a commander may attack it he is obliged to weigh the likely military advantage to be obtained from attacking it against the number of civilian casualties the attack might collaterally cause. Sometimes collateral damage is an inevitable consequence of a lawful attack on a legitimate military objective and is thus not inherently unlawful.[58] However, the commander bears a strict duty to take all feasible measures to keep collateral damage to a minimum.[59]

What sort of military advantage might attacking the vessel confer? First is the important consideration that allowing a vessel to bully its way through the blockade line seriously calls into question the blockade's effectiveness, especially if the attempt is part of a coordinated campaign to undermine the blockade. An ineffective blockade must be abandoned. Second, it might be known that the

resisting vessel is carrying cargo that will make a valuable contribution to the enemy's military effort ashore. These factors would increase the military advantage conferred in attacking a vessel in clear breach.

Against that military advantage must be balanced the likely civilian casualties. In the case of *Mavi Marmara,* the Turkel Commission concluded there were around 570 civilians on board who were not resisting the IDF's attempts to board.[60] If the vessel had been attacked and sunk, this would surely have been an unacceptable level of collateral damage, when the military advantage of preventing breach of the blockade could equally have been achieved by carrying out an opposed boarding, as the IDF in fact did.[61]

Impartiality. A blockade must be applied impartially—that is, it must be enforced against vessels from all states, whether neutral or belligerent.[62] Accordingly, Israel bore not just a right but a *duty* to prevent the Gaza flotilla from breaching the blockade. The Palmer report agreed with this position.[63] The Turkish report's allegations that the blockade was "arbitrary, erratic and partial" are unpersuasive, because they are based on incidents that occurred before the blockade had been declared.[64]

Failure of a Blockade. As with the "effectiveness" rule, breach of the impartiality rule renders the entire blockade void. Once it becomes void, the blockading power must lift the blockade. Before a failed blockade is lifted, however, there is no rule that a merchant vessel may disobey or ignore a notified blockade because it unilaterally considers the blockade unlawful; it could still be subject to capture. However, any such capture ought to be found unlawful during subsequent prize proceedings and due compensation paid by the putative blockading power.

THE EFFECT OF THE BLOCKADE ON THE INHABITANTS OF GAZA

The rules discussed so far have regulated the relationship between the blockading power and other ships at sea. There are three rules that seek to limit the effect a blockade may have on the civilian population in the blockaded territory.

The first is an outright ban on a blockade that has as its "sole" purpose starvation of civilians.[65] "Sole" appears to be a very high threshold—so much so that it might render the starvation rule one of very limited practical application. Even where a blockading belligerent is unscrupulous enough to impose a blockade in order to starve civilians, it will likely be possible to construe some other military advantage to the blockade that might help it evade liability under this rule. Nonetheless, that is the stated and considered position (art. 7.7.2.5) of NWP 1-14M; it is also that of the San Remo Manual.[66] The Palmer report concluded (page 42) that Israel had a legitimate military objective in enforcing the blockade. There was no evidence before any panel of inquiry that Israel's sole (or even main)

purpose was the starvation of the population of Gaza, and so the Gaza blockade may not be impugned on this ground.[67]

The second rule is a much broader reflection of a key principle of the law of armed conflict, that of proportionality—a blockade is prohibited if the damage caused to the civil population is excessive compared to the military advantage conferred.[68] It is clear that the sort of "damage" under contemplation in this rule is starvation or, perhaps more broadly, hunger.[69] This once again raises the difficult "proportionality" judgment. What level of human suffering justifies what level of military advantage? In the context of the Israeli blockade of Gaza, there is the added complexity of distinguishing the effects of the blockade from the controls in place under the land-crossings policy in force ashore.[70] It could be said that it makes little sense to try to separate the effects of the one from those of the other, that each should be assessed in the context of the other such that if the combined effects of the two policies are disproportionate to their military gain, they are both unlawful for want of proportionality.[71] Nonetheless, both the Turkel and the Palmer reports do distinguish the two policies' effects: "It is wrong to impugn the blockade's legality based on another, separate policy," concludes the latter report (page 43, paragraph 78).

On the facts, it is submitted here that the effects of the two policies can and should be sufficiently distinguished to make a proportionality judgment on each. The determining factor in reaching this conclusion is that Gaza has no port facilities. Even prior to the establishment of the blockade, the population of Gaza received virtually no goods or supplies by sea.[72] As regards the blockade's military advantage, Israel points to a sharp reduction in rocket attacks launched from Gaza after the blockade began, an accomplishment that had not been achieved by the land-crossings policy alone before the blockade was established.[73] It may be concluded that despite Gaza's lack of port facilities, Hamas's ability to resupply arms and other material was significantly reduced by the blockade. This article concludes that the blockade was not unlawful for disproportionality.

The third rule is that a blockade must not deny to the civilian population "items essential to its survival."[74] This would include items involved in the production of foodstuffs and would also likely include medical supplies and maybe heating fuel, depending on the circumstances of the blockaded population. The blockading power retains the right to determine the technical arrangements for providing such items to the population of the blockaded territory.[75] It is important to note that because a state may lawfully make technical arrangements for the delivery of humanitarian aid to the blockaded territory, merchant vessels carrying it are obliged to abide by those technical arrangements; vessels carrying humanitarian aid have no right simply to sail through the blockade.[76] The Israeli

blockade made clear provision for the supply of humanitarian aid to Gaza. Such supplies were to be routed through the Israeli port of Ashdod, just to the north of the Gaza Strip, for onward movement to Gaza via the designated land crossing checkpoint. The blockade itself should not be challenged on the basis that it failed to take account of "items essential to survival."

ENFORCEMENT OF THE BLOCKADE

As noted, a vessel that "clearly resists" capture may be attacked in certain circumstances. The issue here, though, is how to treat a crew or passengers who resist the boarding team once the capture is under way. Traditionally the law of naval warfare did not look beyond the platform; the law of naval warfare said nothing about the targeting of individuals. But the principle of distinction—that only combatants must be the object of attack, that civilians must as far as possible be protected from attack—is so fundamental to the law of armed conflict that it would be absurd to suggest that it did not apply at sea.[77]

A blockading force will be dealing almost exclusively with merchant vessels.[78] Therefore, the blockade commander's starting point must be that individuals on board the object vessel are civilians protected from attack unless, and for such time as, they take "direct part in hostilities."[79] The International Committee of the Red Cross propounds the following test for whether an act amounts to "direct participation":

- The act must be likely to affect adversely the military operations or military capacity of a party to an armed conflict.

- There must be a direct causal link between the act done and the harm inflicted.

- That act must be specifically designed to cause directly the required threshold of harm in support of a party to the conflict and to the detriment of another.[80]

If a commander is satisfied on the facts that this test is met by any personnel resisting the boarding, it is lawful to attack them.

Of course, members of the boarding party always retain their right to use proportionate and necessary force in self-defense or in defense of others. This may include lethal force where such force is proportionate and necessary—for example, when there is an imminent threat to human life and there is no other way to extinguish the threat. In many circumstances, service personnel confronted by direct participants will be justified in using force in self-defense and will not need to consider the more complex "direct participation" formulation. However, that will not always be the case, and, so as not to fetter improperly (and

perhaps dangerously) the discretion of blockading forces, the national command must consider whether to authorize rules of engagement (ROE) that also permit the targeting of direct participants, rather than relying solely on the self-defense paradigm.[81] The *Mavi Marmara* case illustrates this position.

The Mavi Marmara *Boarding*

Anticipating that they would be boarded, some persons on board *Mavi Marmara* armed themselves in order physically to repel the IDF boarding party.[82] The IDF party attempted to board by speedboat but was unable to do so due to physical resistance by personnel on board *Mavi Marmara,* resistance that included the use of water cannons and the throwing of objects at the speedboats.[83] After the speedboat boarding failed, three helicopters inserted the boarding party. There were later reports that live fire was used from the helicopter against personnel on the upper deck of *Mavi Marmara;*[84] these were denied by Israel. The first three soldiers to fast-rope onto the deck of *Mavi Marmara* were captured and taken below decks, where they later claimed to have been assaulted.[85] During the boarding, Israeli forces faced armed resistance from persons on board. Israel would claim that firearms were used against its forces, though none were found on board afterward and this was denied by the activists. Before the boarding party gained control of the ship, nine activists were killed by firearms. The autopsies showed that some of the bodies had multiple bullet wounds, some inflicted from behind and some at close range.

There were no military personnel on board *Mavi Marmara;* all of the passengers and crew members were civilians. The Israeli force commander was obliged to make the operating assumption that all of the personnel on board were protected from attack unless it could be determined that they were taking a direct part in hostilities. The Turkel Commission devoted much time to considering (with the benefit of hindsight) which personnel on board *Mavi Marmara* were directly participating in hostilities.[86] The blockade force commander would have had far less knowledge than the commission. However, once the speedboat boarding was attempted and repelled, it would have been abundantly clear that there were individuals on board prepared forcibly to resist the IDF boarding. If it could have been safely concluded that the resisting members of the crew and passengers were direct participants, and if these individuals could have been adequately identified and distinguished, there would have been no reason in law for them not to have been targeted with sniper fire from the helicopter prior to the boarding team's insertion, as was to be alleged by the activists but denied by Israel. The *Mavi Marmara* experience therefore demonstrates circumstances where a "direct participation" analysis would allow a commander lawfully to use force in circumstances outside of self-defense.

The Turkel Commission determined that it could not criticize the level of force used by the IDF in the fatal cases, because of the level of resistance demonstrated and the consequent challenging operating environment.[87] The Palmer report concluded (pages 58–60) that Israel had provided insufficient evidence as to the circumstances of each death to allow the panel to conclude that each of the nine could have lawfully been targeted under the law of armed conflict (i.e., that the test for direct participation had been met). The panel was unpersuaded (page 61) that the nine had been lawfully killed in self-defense, because of the nature and number of the bullet wounds inflicted.

The Impact of International Human Rights Law

This assessment of applicable law would be incomplete without consideration of the impact of international human rights law. Some human rights law is treaty based, such as the 1950 Convention for the Protection of Human Rights and Fundamental Freedoms (the European Convention on Human Rights, or ECHR) or the 1966 International Covenant on Civil and Political Rights (ICCPR). Whether their norms apply depends on whether the state enforcing the blockade is a party to the relevant treaty. Elements of human rights law have also increasingly crystalized into customary law. This law remains applicable during an armed conflict. A state is obliged to protect the human rights of those "within its jurisdiction."[88] The U.S. position is that this provision in human rights law means that there can be no application of human rights obligations outside the territory of the state.[89] On that basis, for an American commander, human rights law has no part to play in any operation outside U.S. territorial waters. However, this is not a widely held position, and both the Human Rights Committee of the ICCPR and the European Court of Human Rights have concluded that norms can apply extraterritorially. The test for whether there is jurisdiction depends on whether the state has "effective control" of the relevant territory.[90] In multinational operations, American commanders must be aware that allies will be subject to additional operating constraints derived from human rights law.[91]

In the context of the *Mavi Marmara* boarding operation, "effective control" of the vessel (vice territory) was achieved once the vessel had been captured and the boarding party had full control.[92] Before that point, the conduct of the boarding was governed by the law of armed conflict alone. After that point, the IDF was obliged to comply with human rights norms, such as the right to freedom from inhuman and degrading treatment. The Turkish report criticized the IDF for interfering with this (and other) rights of the captured crew and passengers;[93] the Turkel Commission considered that the IDF had employed reasonable measures to ensure the safety of the boarding team during the passage to Ashdod and that rights were not infringed.[94]

LESSONS IDENTIFIED FOR THE FUTURE CONDUCT OF BLOCKADES

The foregoing analysis allows four conclusions to be drawn, which may inform the future conduct of blockade operations.

Reaffirmation of the Traditional Law and Practice of Blockade. Despite a lack of consensus on every aspect of the law of blockade, the three investigations into the incident all relied on the classic law of blockade. It seems, therefore, that the concept of blockade is alive and well today. It is equally clear that in certain circumstances blockade can be an effective method of warfare. It deserves to retain its place in national doctrine.

Right to Establish a Blockade in a NIAC. It is difficult to say whether the position that blockade can be a lawful method of conducting a NIAC (on the part of the state party, at any rate) is gaining in contemporary acceptance. Neither of the national reports nor the UN report concluded that the Gaza conflict was a NIAC in which blockade law applied; they all concluded it was an IAC. For the present author, however, Israeli practice in Lebanon in 2006 and in Gaza in 2009 constitute contemporary examples of NIACs in which the international community was (in the main) prepared to tolerate the imposition of blockades.

Employment of the Intention Doctrine. Israel's enforcement action sixty-four nautical miles from the blockade zone was the subject of criticism. Belligerents often wish to court international support for their cause; the perception of overzealous enforcement of rules that might already impact heavily on neutral states' trade may count against that. Early enforcement may also facilitate criticism on the grounds of excessive force. In the case of the Gaza flotilla, what would have been lost militarily had the IDF waited until the flotilla was in the immediate vicinity of the declared blockade zone before effecting capture? Doing so would have made it abundantly clear that the flotilla's actual intentions matched its rhetoric. Even if the intention doctrine is reflective of the contemporary law, one of the key lessons that the Gaza flotilla incident demonstrates is that a blockade is a balance between what is militarily effective and what neutral states will tolerate.

Use of Force in Blockade Enforcement Operations. During an armed conflict a belligerent state's armed forces may target combatants (usually the armed forces of a state) and civilians who are directly participating in hostilities. Whether in an armed conflict or not, a state's armed forces always retain the right to use proportionate and necessary force in self-defense or in defense of others, which may include lethal force where such force is proportionate and necessary. In most cases, vessels that breach or attempt to breach a blockade will be crewed by civilians. It must be assumed that unless the tests for clear resistance or direct participation can be met, the only force that may be employed against a vessel in breach or its

crew is that used in self-defense or defense of others. Because enforcement of the blockade is a legal right (and a duty), reasonable force to compel compliance with the lawful directions of the blockade force would also be permitted; it is unlikely that lethal force would be reasonable in those circumstances.

Therefore the force permitted in most blockade enforcement operations will mirror that for the conduct of peacetime maritime security operations: counterpiracy, counternarcotics, enforcement of UN arms embargoes, and the like. Typical ROE to achieve such a mission will be modeled on this "law enforcement" use of force. Force used is to be the minimum necessary in all circumstances. Lethal force may be employed, but only where proportionate and necessary in self-defense or defense of others. The ROE should contain a series of escalatory measures to compel a vessel to submit for boarding and inspection: a series of verbal warnings, warning shots, nondisabling fire, disabling fire. During the conduct of the boarding, crew members may be detained or restrained where necessary for the safety of the boarding team.

It is submitted here that this model of enforcement operation is appropriate for blockade enforcement. However, ROE should reflect that armed conflict rules continue to apply. Depending on the circumstances, a commander may need rapid authority to attack a vessel that clearly resists capture or to target individual crew members who are directly participating in hostilities. ROE issued need to be agile enough to reflect that need, while also retaining a politically acceptable level of control over the blockade force's activity.

NOTES

1. See Louise Doswald-Beck et al., *San Remo Manual on International Law Applicable to Armed Conflicts at Sea* (Cambridge, U.K.: Cambridge Univ. Press, 1995) [hereafter San Remo Manual], Explanation, p. 176.

2. See the evidence of Lt. Gen. Gabi Ashkenazi, Israel Defense Forces Chief of Staff, to the Public Commission to Examine the Maritime Incident of 31 May 2010 (known as the Turkel Commission), summarized in State of Israel, *The Public Commission to Examine the Maritime Incident of 31 May 2010* (n.p. [Jerusalem]: January 2010) [hereafter Turkel Commission report], pp. 91–92, available at www.turkel-committee.gov.il/.

3. James Kraska, "Rule Selection in the Case of Israel's Naval Blockade of Gaza: Law of Naval Warfare or Law of the Sea?," in *Yearbook of International Humanitarian Law* 13 (2010), p. 370.

4. Turkish National Commission of Inquiry, *Report on the Israeli Attack on the Humanitarian Aid Convoy to Gaza on 31 May 2010* (Ankara: February 2011) [hereafter Turkish report], executive summary, pp. 4–5, available at www.mfa.gov.tr/.

5. Turkel Commission report.

6. Turkish report.

7. Sir Geoffrey Palmer et al., *Report of the Secretary-General's Panel of Inquiry on the 31 May 2010 Flotilla Incident* (n.p. [New York]: United Nations, September 2011) [hereafter Palmer report], available at www.un.org/.

8. Or between two organized armed groups within a state.

9. The doctrine of belligerency deals with occurrences of civil war and other situations of belligerency where the threshold of hostilities

is often insufficient for the application of the laws of armed conflict. There are four conditions of facts arising during such conflicts that classically give rise to the state of belligerency: existence of civil war beyond the scope of mere local unrest; occupation by insurgents of a substantial part of the territory of a state; a measure of orderly administration by the group in the area it controls; and observance of the laws of war by rebel forces acting under responsible authority. V. Azarov and I. Blum, "Belligerency," in *The Max Planck Encyclopedia of Public International Law,* ed. R. Wolfrum (Oxford, U.K.: Oxford Univ. Press, 2008 [updated]), available at www.mpepil.com.

10. 1949 Geneva Conventions, common art. 2. The "level of violence" threshold in an IAC is admittedly very low and is amply met by the conditions in Gaza. See, for example, Sylvain Vité, "Typology of Armed Conflicts in International Humanitarian Law: Legal Concepts and Actual Situations," *International Review of the Red Cross* 91, no. 873 (March 2009), p. 71.

11. Douglas Guilfoyle, "The *Mavi Marmara* Incident and Blockade in Armed Conflict," *British Yearbook of International Law* (2011), note 54.

12. HCJ 769/02 *Public Committee against Torture v Government* [2006] (4) TakSC 3958 (known as the *Targeted Killings* case), paras. 16–18.

13. Turkel Commission report, p. 47.

14. Indeed, the Turkel Commission cites the conflict with Hezbollah in Lebanon as an example of a NIAC in which the international community tolerated the use of blockade. Ibid., p. 49.

15. Turkish report, pp. 81–83.

16. UK Ministry of Defence, *Joint Service Manual of the Law of Armed Conflict,* Joint Services Publication 383 (Shrivenham, U.K.: Joint Doctrine and Concepts Centre, 2004) [hereafter UK Manual], para. 11.3; 1907 Hague Convention IV Regulations, art. 42.

17. HCJ 9132/07 *Al Bassiouni v Prime Minister* (unpublished 30 January 2008), note 140, para. 12.

18. See, for example, Yoram Dinstein, *The International Law of Belligerent Occupation* (Cambridge, U.K.: Cambridge Univ. Press, 2009), pp. 277–80.

19. Guilfoyle, "*Mavi Marmara* Incident," p. 183.

20. Ibid. It appears the Palmer panel too was persuaded by the "occupation" argument; Palmer report, p. 83, legal appendix, para. 20.

21. Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, IT-94-1-AR72 (2 October 1995), para. 70.

22. Turkel Commission report, p. 91.

23. Guilfoyle, "*Mavi Marmara* Incident," pp. 188–89.

24. Wolff Heintschel von Heinegg, "Methods and Means of Naval Warfare in Non-international Armed Conflicts," in *Non-international Armed Conflict in the Twenty-First Century,* ed. Kenneth Watkin and Andrew J. Norris, International Law Studies, vol. 88 (Newport, R.I.: Naval War College, 2012), p. 228, reaches the same view. Guilfoyle, "*Mavi Marmara* Incident," p. 189, reaches the conclusion that the conflict is (or was at the material time) neither an IAC nor a NIAC, for want of sufficiently "protracted" violence.

25. *The Prize Cases,* 67 U.S. 635, 670 (1863); Guilfoyle, "*Mavi Marmara* Incident," note 112.

26. Guilfoyle, "*Mavi Marmara* Incident," pp. 191–94, 216.

27. Heintschel von Heinegg, "Methods and Means," p. 214, citing Guilfoyle, "*Mavi Marmara* Incident," p. 192.

28. Heintschel von Heinegg, "Methods and Means," p. 215; Guilfoyle, "*Mavi Marmara* Incident," p. 193.

29. Heintschel von Heinegg, "Methods and Means," p. 215; Guilfoyle, "*Mavi Marmara* Incident," p. 193.

30. Guilfoyle, "*Mavi Marmara* Incident," p. 193, and on the basis of analysis, pp. 187–78. The basis for this position is Israel's entry into Lebanese territory without Lebanese consent, lending the conflict an international character.

31. Heintschel von Heinegg, "Methods and Means," pp. 214, 228.

32. While as a matter of law, the threshold of intensity of violence for an IAC is lower than for a NIAC, it is submitted that the appearance of "all the trappings of an IAC" is a factor that states may have taken into account in reaching their views, as did the Palmer report, p. 41.

33. 1982 UN Convention on the Law of the Sea (UNCLOS), art. 86.

34. Ibid., art. 87(1)(a).

35. UNCLOS recognizes this by subordinating in article 87(1) the freedom of navigation to "other rules of international law."

36. U.S. Navy Dept., *The Commander's Handbook on the Law of Naval Operations,* NWP 1-14M (Washington, D.C.: July 2007) [hereafter NWP 1-14M], art. 7.7.1; San Remo Manual, Explanation, p. 176.

37. NWP 1-14M, art. 7.7.2.2; UK Manual, para. 13.65; San Remo Manual, para. 93.

38. NWP 1-14M, art. 7.7.2.2.

39. Ibid., art. 7.7.2.3.

40. Ibid.

41. Palmer report, p. 42.

42. Ibid. The Turkish report (pp. 74–75) relies on incidents prior to the establishment of the blockade to conclude, unconvincingly, the converse position. See also discussion of the "impartiality" rule below.

43. UK Manual, para. 13.65; San Remo Manual, para. 96.

44. See NWP 1-14M, art. 7.7.5; and San Remo Manual, Explanation, p. 177.

45. San Remo Manual, Explanation, p. 178; Wolff Heintschel von Heinegg, "The Law of Armed Conflicts at Sea," in *The Handbook of International Humanitarian Law,* ed. Dieter Fleck, 2nd ed. (Oxford, U.K.: Oxford Univ. Press, 2008), p. 557.

46. NWP 1-14M, art. 7.10; UK Manual, para. 13.70; San Remo Manual, para. 98.

47. NWP 1-14M, art. 7.7.5, adopts this position, as does the San Remo Manual, p. 178.

48. See R. W. Tucker, *The Law of War and Neutrality at Sea,* International Law Studies, vol. 50 (Washington, D.C.: U.S. Government Printing Office, 1955), pp. 293–94.

49. See, for example, the states' respective positions during negotiations at the Hague Peace Conference in 1907, discussed in Stephen C. Neff, *The Rights and Duties of Neutrals: A General History* (Manchester, U.K.: Manchester Univ. Press, 2000), p. 135.

50. Turkish report, p. 87.

51. Palmer report, pp. 4, 52–53.

52. "The term 'prize' relates to those vessels or cargoes which may be seized, with or without the consent of the captain or master . . . , and then brought before a national prize court to be condemned for the use of the captor." James Kraska, "Prize," in *Max Planck Encyclopedia of Public International Law,* ed. Wolfrum.

53. NWP 1-14M, art. 7.10; San Remo Manual, Explanation, p. 193. The UK Manual (p. 367n103) declares that the United Kingdom is unlikely to use prize courts in the future and that captured vessels might simply be deemed to be the property of Her Majesty's government. This position has been sharply criticized in Yoram Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict* (Cambridge, U.K.: Cambridge Univ. Press, 2010), p. 248. In response to this criticism, one of the authors of the chapter "Maritime Warfare" of the UK Manual has corrected that position, saying that the High Court retains a prize jurisdiction that would still be exercised if required: Steven Haines, "The United Kingdom's Manual of the Law of Armed Conflict and the San Remo Manual: Maritime Rules Compared," *Israel Yearbook on Human Rights* 36 (2006), p. 107.

54. UK Manual, para. 13.70; San Remo Manual, para. 98. NWP 1-14M does not employ this formulation, but neither does it suggest another.

55. NWP 1-14M, art. 7.7.4.

56. Palmer report, p. 52.

57. NWP 1-14M, art. 7.10, reflects this position, as does the San Remo Manual, para. 98. The UK Manual is more guarded, adopting the position that determination of "clear resistance" may not be sufficient of itself in all circumstances to render a vessel a military objective and thus a lawful target (para. 13.70, referring to paras. 13.46–48).

58. NWP 1-14M, art. 8.3.1.

59. Ibid.; UK Manual, para. 13.32; San Remo Manual, para. 46.

60. Turkel Commission report, pp. 234–42.

61. An opposed boarding is defined by Alan Cole and others in Dennis Mandsager et al., *Sanremo Handbook on Rules of Engagement* (San Remo, Italy: International Institute of Humanitarian Law, November 2009), annex D, p. 84, as "a boarding where the master or

crew has made it clear that steps will be taken to prevent the boarding."

62. NWP 1-14M, art. 7.7.2.4; UK Manual, para. 13.72; San Remo Manual, para. 100.

63. Palmer report, p. 52.

64. Turkish report, pp. 74–75: "In 2008, prior to the 3 January 2009 formal declaration of the 'blockade,' at least six voyages from Cyprus to Gaza occurred without naval interception." The report even goes on to say, "After January 2009, enforcement seems to have increased."

65. UK Manual, para. 13.74.a; San Remo Manual, para. 102(a).

66. At para. 102(a) and Explanation, p. 179. The UK Manual interprets the prohibition more broadly, saying that a blockade will be unlawful if it is "intended to starve" the civilian population (art. 13.74.a).

67. The Turkish report seems to read the rule (p. 68) too broadly, looking at the blockade's effect rather than intent.

68. NWP 1-14M, art. 5.3.3; UK Manual, para. 13.74.b; San Remo Manual, para. 102(b).

69. See San Remo Manual, Explanation, p. 179.

70. The limitations on imports into Gaza imposed under the land crossings policy are described in detail by Kraska, "Rule Selection in the Case of Israel's Naval Blockade of Gaza," pp. 377–79.

71. Guilfoyle, "*Mavi Marmara* Incident," p. 204. The Turkish report adopts (p. 70) a similar position.

72. Palmer report, p. 43, para. 78.

73. Turkel Commission report, p. 92.

74. UK Manual, para. 13.74.a; San Remo Manual, para. 102(a).

75. UK Manual, paras. 13.74.a, 13.75; San Remo Manual, paras. 102(a) and 103–104.

76. The Turkish report's conclusion to the contrary (p. 83) must be doubted.

77. See San Remo Manual, Explanation, p. 114; and Heintschel von Heinegg, "Law of Armed Conflicts at Sea," pp. 491–93. For present purposes, "combatants" may be defined simply as members of the armed forces of a state.

78. Enemy warships, as military objectives, are subject to attack whether they attempt to breach a blockade or not.

79. As expressed in the 1977 Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), art. 51(3), but reflecting customary international law.

80. Nils Melzer, "Interpretive Guidance on the Notion of Direct Participation in Hostilities under International Humanitarian Law," *International Committee of the Red Cross,* 2009, www.icrc.org/.

81. The author is aware that it is not just the law that guides the content of ROE but important policy constraints may also prevent a national command from authorizing certain uses of force.

82. By sawing iron bars from the guardrails and assuming agreed positions; Palmer report, p. 56.

83. Turkel Commission report, p. 142.

84. Turkish report, p. 93.

85. Turkel Commission report, p. 151ff.

86. See analysis in ibid., pp. 184–201.

87. Ibid., pp. 263–69.

88. See, for example, ECHR, art. 1, www.echr.coe .int/.

89. See, e.g., Aldo Zilli, "Approaching the Extraterritoriality Debate: The Human Rights Committee, the U.S. and the ICCPR," *Santa Clara Journal of International Law* 9 (2009), p. 410ff.

90. See, for example, *Bankovic and others v Belgium and others* (2001) BHRC 435, para. 71.

91. In particular, these additional constraints will apply in the context of armed-conflict detention operations. An example of the effect of this is *Al Jedda v United Kingdom* (2011) Application 27021/08, a decision of the Grand Chamber of the European Court of Human Rights.

92. Turkel Commission report, p. 230, citing the European Court of Human Rights case *Medvedyev and Others v France* (2010) Application 394-03, pp. 63–67.

93. Turkish report, p. 105.

94. Turkel Commission report, pp. 176–79. The disagreement between the two reports is attributable in the main to different findings of fact in relation to the allegations of mistreatment.

THE TYPE 45 *DARING*-CLASS DESTROYER

How Project Management Problems Led to Fewer Ships

Ben Lombardi and David Rudd

I n 1998, the British government led by Prime Minister Tony Blair released the
Strategic Defence Review (SDR), in which it identified a requirement for twelve
state-of-the-art warships for the Royal Navy (RN) to be configured for antiair
warfare.[1] This new naval platform was conceived as a replacement for the Type 42
destroyers, which had first entered service in 1978; its development was initially
associated with the Anglo-French-Italian Horizon project that had replaced the
NATO Frigate Replacement, from which Britain withdrew in 1989. That vision,
however, had a very short shelf life. Some months after the SDR's release, Britain

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withdrew from the Horizon project and launched
an indigenous Type 45 destroyer program. Pro-
duction of the first ship, HMS *Daring,* began in
2003.

From the outset, the Type 45 suffered from re-
peated changes in government direction. Six years
after the Blair government identified the require-
ment for new air-defense frigates, the number of
warships to be acquired was revised downward. In
2004, the Ministry of Defence (MoD) announced
that "the reduced conventional threat, our revised
concurrency assumptions and improved network
capability" meant that only eight ships were re-
quired.[2] Two years later it was decided to build
only six Type 45s, while reserving a decision on
the acquisition of the seventh and eighth ships.

When Gordon Brown, Blair's Chancellor of the Exchequer (i.e., finance minister), took over as prime minister in 2007 that position was maintained, but the pressing exigencies of government finances began to assume greater prominence. "Six Type 45 destroyers are currently on order," a government minister at the time observed, adding that "further orders will depend on the affordability of industry proposals, value for money and the wider implementation of the maritime industrial strategy by industry and the Ministry of Defence."[3] In early 2008 the MoD informed a parliamentary committee that only six Type 45s had been ordered and that "anything beyond that is subject to the review process now going on."[4] Four years later, and with a new government (the Conservative–Liberal Democrat coalition under David Cameron) slashing defense spending as part of an austerity program, it is certain that only six of these ships will ever be acquired.

Characterized by cost overruns, delivery delays, and, initially, reduced capabilities, the Type 45 program has become a symbol in the United Kingdom for mismanagement of procurement. The 2009 Gray Report, which examined defense procurement, noted that the reduction in the number of Type 45s was in part linked to the soaring costs of each ship: "HMS *Daring* and her sisters will cost £1 billion each, a price so high the United Kingdom can only afford six ships. This level of expenditure is well beyond any other current navy in the world barring the US and France."[5] That argument is shared by many members of the British parliament who reviewed the program on several occasions. In early 2008, for example, the House of Commons Defence Committee assessed the Type 45 program as the third worst of the major naval programs, behind the Nimrod MRA4 maritime patrol aircraft and the *Astute*-class nuclear-powered attack submarine, with *Daring*'s delivery three years behind schedule and costs nearly £1 billion over budget (at £6.45 billion). Perhaps even more disturbing, the capability set that had been used by MoD officials to justify the scaling back of the numbers from the original twelve has also been reduced. Looking back, it is arguable that however capable the Type 45 class is, the impact of its procurement (on the defense budget and on fleet size) has been anything but strategic, underscoring the Gray Report's suggestion that the acquisition of such expensive platforms "may seem bizarre."

What went wrong? Testifying before a parliamentary committee in March 2009, Sir Bill Jeffrey, then the Permanent Under-Secretary in the MoD and the department's most senior civil servant, stated that "it is clear that what principally went wrong was that we were substantially overoptimistic about the time it would take to deliver this, about the technical challenge it would represent and about what it would cost. . . . We underestimated the degree of technical risk we were taking on."[6]

That assessment is, however, so sweeping that it obscures a real explanation. Jeffrey never discussed the renegotiation of the original contract two years earlier (in 2007) or how a new project-management framework had been put in place. The new framework, in fact, brought the spiraling costs of the program under control, and HMS *Daring* was commissioned a few months later. It was none-theless recognized that the Type 45s would not be able to do all that had been originally promised. Given that Jeffrey had described the ships as "a capability that we will be using for several decades," those limitations represent a potentially serious shortfall.[7]

This article will attempt to answer questions regarding how and why a key component of Britain's surface fleet has been scaled down to its current size. It highlights some of the uncertainties that can affect fleet size even when the near completion of high-profile procurement programs suggests that such concerns have been satisfactorily addressed. The reduced number of Type 45s will chal-lenge the Royal Navy's ability to maintain a sustainable hold on full-spectrum operations; as a consequence, there are very few naval analysts who believe that the RN will be able (as it claims) to make available five of the six *Daring*-class ships for operational tasking.[8] Coming on top of other decisions already taken to downsize Britain's maritime capabilities, that constraint is pregnant with implica-tions for national strategy.

More generally, these developments are relevant not only to Great Britain and the Royal Navy. Many governments are currently engaged in major naval capitalization programs, and they could well confront the same problems that distracted the Type 45 program or similar ones. Given the tight defense budgets that characterize the age in which we are living, the strategic impact of such dif-ficulties could be all the more significant.

THE *DARING*-CLASS DESTROYER

The Type 45 destroyer is one of the Royal Navy's most important capability-enhancement programs. It represents a leap forward in Britain's ability to monitor airspace in the vicinity of RN task groups and to track and prosecute "air-breathing" threats. Currently, the RN has four *Daring*-class destroyers, with another to be commissioned in March 2013 and the sixth and last of the class (launched in October 2010) expected to enter service in 2014. Three of this class have already been deployed. HMS *Daring* saw its first operational deployment when it was sent east of Suez in early 2012 as a demonstration of solidarity with the United States in upholding the Iranian-sanctions regime. Soon after that, HMS *Dauntless* was sent to the South Atlantic to signal resolve in the face of hostile rhetoric from Argentina concerning the Falkland Islands.[9] HMS *Diamond* deployed to the Per-sian Gulf between June and December 2012.

Displacing up to eight thousand tons and with a speed of twenty-seven knots, the Type 45 is considerably larger than the Type 42, but with a smaller complement (187 personnel as opposed to 287).[10] Designated as an air-defense destroyer, it is armed with the Sea Viper missile system—a more advanced, United Kingdom–only variant of the Principal Anti-Air Missile System (PAAMS) being deployed on the Horizon frigates.[11] It is expected that the Sea Viper will "form the backbone of the Royal Navy's air defence capability for the next 30 years."[12]

The heart of this system is the Sampson multifunction electronically scanned radar, which is capable of monitoring a thousand baseball-sized objects at a range of four hundred kilometers. Aerial targets are engaged by short-and-medium-range Aster 15 and long-range Aster 30 missiles fired from a forty-eight-round SYLVER 50 vertical launcher. Secondary armament consists of a 4.5-inch Mark 8 dual-purpose gun, and various smaller-caliber weapons are mounted for defense against asymmetric threats. Sea Viper is designed to be capable of defending against multiple incoming and maneuverable missiles, even those traveling at supersonic speeds. Perhaps just as significantly, the ship will be able to provide support to littoral operations, either by extending its air-defense shield over amphibious forces on land or by deploying up to eighty Royal Marines or special-forces personnel, for whom it has berths. In contrast to allied vessels of its type, the Type 45 will be able to support a large Chinook transport helicopter from its enlarged flight deck.

As HMS *Daring* and its sisters have proceeded through the build, trial, and acceptance phases, observers have noted that the project has come up short in several respects. Initial deliveries have lacked the Skynet 5 and Bowman communications systems—both of which are required to exchange information with other units. The ships also lack an antiship missile, and those delivered prior to 2011 a 20 mm Phalanx close-in weapons system as well. The latter represented a rather strange deficiency given the RN's experience in the 1982 Falklands War, in which the task force suffered grievously from low-flying attack aircraft armed with free-fall bombs and Exocet missiles. It was also somewhat incongruous with the decision by most allied navies to install such weapons on comparable platforms (see figure).

According to reports, provision had initially been made for a 155 mm gun on the last four ships of the class (but development costs were too high, so it will not be installed), and all six ships are eventually to be fitted with the Phalanx, as well as two 30 mm guns to defend against high-speed threats that penetrate the outer defenses. The ship boasts a bow-mounted sonar to detect submarines but, in contrast to the Type 42 ships it is replacing, has no antisubmarine torpedo tubes. (The responsibility for prosecuting subsurface contacts rests entirely with an embarked Merlin or Lynx helicopter.) Also, while some air-defense vessels

AIR-WARFARE DESTROYERS

	Daring (Great Britain)	*Arleigh Burke* (USA)	Horizon (France/Italy)	F-124 (Germany)
Tonnage	8,000	9,000	7,000	5,690
Main gun	1 × 4.5-inch	1 × 127 mm	2/3 × 76 mm	1 × 76 mm
Antiship missile	Nil	8 × Harpoon	8 × Exocet/Teseo	8 × Harpoon
Helicopters	1 Lynx or Merlin	2 SH60R	1 NH90	2 NH90
Torpedo tubes	Nil	6	2	6
Cruise missiles	Launcher reqd	Yes	Launcher reqd	Possible
Close-in system	2 × Phalanx (post-2011)	2 × Phalanx	See main gun	2 × RAM
Med.-range SAM	32 × Aster 15	256 × ESSM	32 × Aster 15	64 × ESSM
Long-range SAM	16 × Aster 30	32 × SM-3	16 × Aster 30	16 × SM-3
Complement	191	276	195/200	255
Special forces	31	Nil	Nil	Nil

Note: SAM = surface-to-air missile.

Source: Adapted from "DDG Type 45: Britain's Shrinking Air Defense Fleet," *Defence Industry Daily,* 13 June 2012, www.defenseindustrydaily.com/, and *Jane's Fighting Ships, 2011–2012.*

currently in service or under construction in allied navies have a built-in capability to launch land-attack missiles to engage targets well inland, the Type 45 design does not. As with the Phalanx system, this deficiency may be addressed in the future, although at the time of writing there are no firm plans to pursue either of two options that could address the issue. The first would be to replace the existing vertical launcher with the longer SYLVER 70 launcher, which is suitable for carrying the naval variant of the SCALP cruise missile; the other would add a Mark 41 vertical launcher abaft the SYLVER 50 for the Tomahawk cruise missile.

A possible explanation for these absent capabilities is that the RN requirement —insofar as it can be discerned using open sources—was for an air-defense vessel only and that the ship's apparent shortcomings (i.e., antisubmarine and antisurface warfare) could be made up by other vessels in a task group. Another is cost— by virtue of their elaborate radar arrays and missile batteries, air-defense ships are typically more expensive to design and build than general-purpose vessels. In addition, there seems to be a great deal of faith placed in "spiral development" and in "fitting for but not with," in which additional equipment is installed later as budgets permit. Indeed, the MoD has indicated on several occasions its intent "to fit a number of equipments incrementally on ships after they have come into service."[13] In a resource-constrained environment, this seems entirely rational—so long as the overall size of the RN does in fact permit the deployment of additional

units in an accompanying role. However, doubts have emerged in recent years as to whether this will be the case.

KEY QUESTION 1: WHY THE REDUCTION IN NUMBERS?

The first question that has to be addressed is why the original requirement for twelve ships of the *Daring* class changed a decade later to only six. The Type 45 program had been originally presented in the 1998 SDR as necessary for Britain's naval requirements in the first half of the twenty-first century. Fourteen years on, the ship remains an important naval platform, much touted by British politicians as one of the most powerful vessels afloat. However, alongside the cancelation in 2011 of Nimrod and lingering uncertainty about the future of the second *Queen Elizabeth*–class carrier, the reduced number of escorts (including Type 45s) is perhaps the most significant change in the Royal Navy's fortunes. It was always assumed that the entry into service of the *Daring* class would accompany some reduction in destroyers and frigates, but the halving of that particular program has greatly exacerbated the situation. How did that happen? There are, essentially, three reasons: a revised strategic assessment, the availability of new technology, and the high cost of each ship.

Strategic Change

The 2004 defense white paper—*Delivering Security in a Changing World: Future Capabilities*—gave the first indication that the number of Type 45s would be reduced. In contrast to the SDR, the planning assumptions in the new document stated that the United Kingdom would reorder its military posture so as to be able to undertake "the more likely multiple, concurrent, small to medium-scale operations over wider geographical areas" than had previously been the case.[14] It is plausible, albeit uncertain, that this strategic decision was informed by operations in the Balkans, Afghanistan, and Iraq, which had placed heavy demands on Britain's land (versus maritime) defense capabilities.

The focus on small-to-medium-sized contingencies was significant in that it prompted the MoD to observe that frequent operations of that kind possessed certain common characteristics. Among them was the notion that the (re)imposition of stability by a joint force could be followed by the deployment of lighter forces to ensure that gains were not reversed. This, it argued, had "particular implications for the levels of maritime sea control, air and heavier offensive land forces required on an enduring basis."[15] In essence, this reflected the belief that fewer sophisticated naval vessels would henceforth be required in the expected strategic environment. By way of "proof," one senior MoD official stated that a reduction in the RN's task list would include "a particular standing NATO task"— a likely reference to the long-established practice of deploying a single ship with

Standing Maritime Group 1 in the eastern Atlantic.[16] Given the subsequent observation that the submarine threat had also diminished in the post–Cold War era, it is evident that policy makers had concluded that a reduction in the surface combatant force from thirty-two to twenty-five major units was justified.[17]

It was clear that for the British government maritime ambitions were changing. A reduced conventional threat to the United Kingdom, along with the increased salience of international terrorism and failing states, called for a capable but smaller Royal Navy—a "versatile and expeditionary force with an increasing emphasis on delivering effect *on land*."[18] This view envisioned the retention of the carrier strike capability (i.e., ships and aircraft), submarines armed with land-attack cruise missiles, and amphibious shipping necessary to deploy Royal Marines. While an air-defense vessel would be an integral part of a surface task force, the stage was clearly being set for a devaluation of the Type 45. Thus it should have come as no surprise that the document confirmed the reduction in the build program from twelve to eight hulls.

Technological Change

The Royal Navy's intent is to have up to five Type 45s available at any given time for sea duty, albeit at varying levels of readiness. With a reduced buy, such a high level of readiness is extremely ambitious. But by 2009 a departmental consensus had emerged, grounded on a belief that by harnessing technology and optimizing support arrangements, ships can be made so reliable that they will spend 35 percent of their lifespans at sea and be available for sea another 35 percent if required.[19] At the time of writing it is unclear whether these expectations can be met over a protracted period of time.

Another justification for a reduction in numbers was the government's enthusiasm for Network Enabled Capability (NEC). Described as the coherent integration of sensors, decision makers, and weapons systems in a manner that allows for rapid information sharing, reduced decision-making times, and precise targeting, NEC quickly became a sort of panacea for budget-conscious planners. According to one analysis, "one of the main implications of a network-centric, rather than a platform-centric, focus for force composition is that the ability to respond more quickly and precisely will act as a force multiplier, thereby allowing the Armed Forces to achieve its intended effect through a smaller number of . . . linked assets."[20]

For the RN, this would entail participation in the U.S. Navy's Cooperative Engagement Capability (CEC) program to enable ships to share a "picture" of the surrounding airspace. Instead of handling the entire detection/engagement cycle itself, an RN vessel could receive orders to fire from another ship—either British or allied—before its own sensors detected the threat. In material terms this would

require air-defense ships entering RN service to carry the necessary hardware to collect, process, and distribute information as part of a joint or multinational force. Initial operational capability of CEC on the Type 45 was to be achieved in 2014.

But if the capability of an individual ship was significantly enhanced by CEC, concomitantly fewer ships were required. In July 2004, Admiral Sir Alan West, the First Sea Lord, spelled out the implications of CEC for fleet size: "The potential gains to be realised from . . . network enabled capability, combined with the revised planning assumptions, result in all 3 services requiring fewer units than before. . . . By improving the quality of the networked capability of our major warships we will be able to deliver the desired military effects from a reduced number of platforms."[21]

In subsequent hearings on the white paper before the House of Commons Defence Committee, Sir Kevin Tebbit, Permanent Under-Secretary at the MoD (1998–2005), provided further confirmation of the salience of NEC in the government's planning assumptions. Responding to the concerns of members over the shrinkage of the RN, Tebbit testified that NEC "is genuinely networking ships more effectively so they can link together, acquire target effectively, exchange information, and engage targets. With that, again, we are able to cover a wider sea area with fewer ships."[22]

Five years later, following the 2008 defense review that reduced the number of Type 45s to six, and before the lead ship would even enter the water, the government was still putting faith in the ability of yet-to-be-acquired technology to compensate for lower numbers—so much so that the previous commitment to twelve hulls was a far distant memory. In a rather surprising, but nonetheless revealing, admission to the Defence Committee, Guy Lester, director of the MoD's Capability Resources and Scrutiny, said:

> I am trying to remember why the requirement was originally 12. The successive reductions we have had from 12 to eight and then eight to six reflected partly priorities in the program and partly an understanding of the capabilities of the ship, especially when we fit them with Co-operative Engagement Capability, the improved networking compared with what was originally envisaged, but the judgement is that with a fleet of six we can protect a medium-scale operation, which is two task groups, and that is what we need to do.[23]

This argument was being maintained long before the installation of the appropriate hardware and software or conduct of a series of at-sea trials to confirm its functionality. In fact, when one member of Parliament expressed a concern that a reduction in the number of hulls was potentially "at the very highest end of risk that can be taken as far as the capability being available in adverse circumstances,"

it was summarily dismissed by the chief operating officer of Defence Equipment and Support (DE&S), the procurement agency of the MoD. "We have taken a carefully calculated risk," Dr. Andrew Tyler stated, "and believe that we can live with that perfectly."[24]

Unfortunately for the RN, the claim made by MoD officials regarding the salience—to say nothing of the efficacy—of NEC was subsequently and decisively undermined by the decision taken in June 2012 to forgo the implementation of a £500 million program to acquire the CEC system. Soon after, in yet another stunning admission, a senior MoD official said, apparently without a trace of embarrassment, that "Cooperative Engagement Capability has not been cut; it was never in the committed core equipment program."[25] That the MoD would abruptly reverse course on the issue despite repeated assurances to Parliament that acquiring CEC justified the reduction in the number of Type 45s is troubling. At the very least, it suggests that the initial commitment to CEC had been essentially virtual (i.e., political). The system would have significantly enhanced the class's capabilities and value to the Royal Navy, but in fact it seems to have been largely intended to deflect criticism from the government's decision to truncate an important build program.

Rising Costs per Ship

Both an updated appreciation of the international security situation and claimed capability trade-offs arising from new technology undoubtedly exercised some influence on the government's decision to reduce the number of Type 45s that were to be acquired. However, it is also very clear that the "spiralling costs of the ship and the pressure on the equipment programme budget" were even more significant.[26] Indeed, an all-party investigative report prepared by the Defence Committee went farther, arguing that "the reduction in numbers was in fact primarily down to affordability."[27] The Type 45 program was made more vulnerable to rising costs by the fact that the government was also at the time seeking to cut defense expenditure. In his February 2010 testimony before the Chilcot Inquiry into the Iraq War, Sir Kevin Tebbit stated that the unexpected reduction of a billion pounds from the defense budget in 2003 required the MoD to find savings in areas that did not affect ongoing operations in Afghanistan and Iraq, including in the numbers of destroyers and frigates.[28]

This was the fiscal context of the announcement that followed in the 2004 white paper that the number of ships was to be reduced from twelve to eight. Annual budgets, however, continued to impact negatively the Type 45 program, for as the decade drew to a close both Parliament and the public became increasingly aware of the huge unfunded shortfall in the defense procurement program—a gap that was largely ignored by the Blair and Brown governments and that was

estimated, at the time the Gray Report was commissioned, to be about thirty-seven billion pounds.[29] Therefore, it cannot have come as a surprise to those tracking the Type 45 program that when, in June 2008, the government informed the House of Commons that it was declining the option to acquire hulls seven and eight, the entire armed forces equipment program was also being reviewed in light of new budget constraints.

The issue of rising costs was exacerbated by two additional factors specific to the Type 45 program. The first was that while these ships were designed to be incrementally upgraded, the upgrade program itself was zero-funded. In other words, while government statements highlighted the fact that the Type 45 would, by virtue of its large size and design, be able to incorporate the very latest systems to maintain its usability, there was no room in the existing budget for the acquisition of any such systems. Second, when the development of some of the Type 45's specified equipment and weapons (such as the Sea Viper missile system) fell behind schedule—for which the government had declared responsibility—their unexpected cost increases had to be absorbed by the defense budget. As the time delays often lasted years, inflation and rising labor and material costs accruing to the shipbuilders (BAE Systems and Vosper Thornycroft), for which they claimed compensation, further contributed to overall unit-price escalation.[30]

Consequently, throughout the decade that the ships were being constructed, the MoD engaged in a series of ad hoc cost/capability trade-offs. For example, just before the government's mid-2008 announcement, additional savings were found by reducing the number of missiles planned for each of the six remaining ships.[31] It is also more than probable that the June 2012 decision not to purchase the CEC can be explained, in whole or in part, by the system's price tag of forty-five million pounds per ship.[32] The reduction in the number of ships can, therefore, be seen as just another cost/capability trade-off (albeit the one with the largest profile), as was implied in testimony before the Public Accounts Committee given by Rear Admiral Paul Lambert, the deputy chief of the Defence Staff for Equipment Capability.[33]

KEY QUESTION 2: HOW DID THE BRITISH GOVERNMENT LOSE CONTROL OF THE TYPE 45 PROGRAM?

In 2007, the original build contract for the Type 45s was renegotiated. In testimony before parliamentary committees, MoD officials have pointed to the new partnership with industry that followed the renegotiation as a turning point in the program. Spiraling costs were subsequently brought under control, and there were no longer unexpected delays in construction.[34] This turnaround followed recognition in late 2005 by the Blair government—five years after the build contract had been placed—that the program was significantly off course. The

driver for what followed was a growing awareness of (and perhaps the political danger associated with) escalating costs. Consequently, in 2006 the program was placed into what Sir Bill Jeffrey referred to as a "project rehabilitation unit within the Defence Procurement Agency." The in-depth study that followed apparently yielded the general conclusions that he cited before the House of Commons Public Accounts Committee: "The risks were greater than had previously been acknowledged, [the study] identified the poor relationship with BAE Systems as being at the heart of the problem, and [it] recommended the kind of approach that we then followed through after a lot of detailed discussions with the industry in 2007."[35]

The project-management arrangements that had governed the Type 45 program prior to 2007 contributed to serious frictions with industry that had impacted negatively on construction.[36] Reflecting on the situation before the contract's renegotiation, a senior British naval officer stated that there was a need to "get away from the culture of argument" that had characterized government-industry relations in the period prior to the contract being revised.[37]

The "culture of argument" stemmed, one assumes, from testimony given before parliamentary committees and from the uncertainty surrounding the Type 45 platform at the outset of the program. The complexity of a modern warship requires that propulsion, communications, weapons, and support systems all be integrated. This demands a clear understanding of what types of technology are to be incorporated, when in the build process, and for what purposes. When questions dealing with these issues arise from either industry or government and cannot be met with precise responses, a common understanding of the project is likely to be absent. In such a situation, it is only logical that frictions will develop. In the case of the Type 45 program, that is what apparently happened. In addition to the internal MoD report (to which the authors of this article have not had access), a number of other studies have spotlighted several important problem areas. For example, a DE&S briefing in mid-2011 to a visiting delegation from the Royal Canadian Navy touched on several lessons related to the framing of the project itself, as well as to broader issues related to the government-industry interface.[38]

Among open-source documents, however, the most detail concerning the Type 45 program appears in a March 2009 report prepared by the British government's financial watchdog agency, the National Audit Office (NAO). It asserts that "the associated commercial arrangements did not reflect the risks and uncertainty remaining, project control and decision making were poor, governance structures were ineffective, and relationships between the Department and BVT [the industrial consortium building the ships] broke down."[39] It also provides considerable insight into the overall impact of poorly conceived commercial

arrangements and project oversight. Generally speaking, these issues fall into four categories: commercial difficulties, oversight deficiencies, disproportionate distribution of risk associated with the build program, and technology risk.

Commercial Structure Undeveloped at Time of Initial Contract

According to DE&S's own analysis, the build contract for the Type 45s had been placed before a viable commercial structure to support it had been established. The NAO report notes that the government's original intent was to share the design and construction of the first three ships between two of Britain's largest shipbuilding firms, BAE Systems Marine and Vosper Thornycroft. Early efforts to construct a commercial "alliance" between the two firms failed, however, and the MoD was required to assume a larger profile in the design of the ship than had been intended, introducing delays from the outset and eliminating competition in the procurement process.

A RAND Europe study commissioned by the MoD in 2002 opined that the "commercial structure" envisaged for the project was potentially problematic in terms of engineering. A block-building approach, in which different portions of a ship were built at different shipyards, was taken, ostensibly to reduce costs. It also ensured that any economic benefits were spread through an industry already affected by oversupply. However, block-building increased the complexity of the build process, especially as the shipyards involved had not worked together before, and that likely contributed to further construction delays.[40] Presumably the severity of these engineering concerns was mitigated, although they were probably never eliminated, when "BVT Surface Fleet," a joint venture, was created in 2008.[41]

That economic development concerns played a role in the too-hasty placing of the contract, when the design was still admittedly immature, cannot be verified. However, there is no question that block-building of the Type 45s garnered considerable political support in the House of Commons, where individual members eagerly and very publicly endorsed the early announcement of the program in 2000 on the basis of possible benefits for their constituencies.[42] As in other countries, defense spending for reasons other than capability acquisition is very politically salable in the United Kingdom, where using naval procurement to support the shipbuilding industry and regional economies has never lost its appeal. In early 2012, one of the leaders of UNITE, Britain's largest industrial workers union, urged the government to "bring forward orders for a new generation of frigates" to preserve both the country's ship-making capabilities and an estimated six thousand engineering jobs. Indeed, given that a referendum on Scottish independence is slated for autumn 2014, the involvement of Glasgow yards and the associated economic benefits could also have a national political impact.[43]

Oversight Deficiencies

The NAO having identified colocation of MoD personnel as part of the solution of the Type 45 program's problems, it seems likely that there was insufficient departmental on-site oversight of the project.[44] The Public Accounts Committee noted that the MoD's lead personnel assigned to the project did not stay at their jobs long enough to develop a complete understanding of developments;[45] in fact, the NAO observed that the MoD's project team lacked "suitably qualified staff and relied on consultants." As a consequence, the NAO concluded, the "department relied on BVT to provide data on project progress, costs and risks. BVT continued to be optimistic about project progress and the Department was therefore not well placed to challenge BVT's assumptions." It noted that the MoD did not have a "single high-level overview" of the whole project that would allow in-time assessments of the project's status. Further, the NAO reported that the project management team was unable to communicate problems up the chain within the MoD—suggesting an impervious bureaucratic structure or a senior management overwhelmed by operational requirements.[46]

While the NAO's report does not provide much further detail, its conclusions suggest the existence prior to 2006 of a situation where the government did not have a full appreciation of what was happening during the initial build process. There is evidence that indirectly supports this interpretation and that, further, underscores the inference of a lack of transparency. In testimony to the Public Accounts Committee, the chief operating officer of DE&S observed, in reference to the years since 2007, "we now have an open book environment where we can see the progress the contractor is making. We have full visibility of their schedule, their costs incurred and, indeed, the profit made and we have an incentive scheme that incentivises the contractor to do well."[47] One can therefore surmise that for the first six years of the project the MoD did *not* have sufficient understanding of the builders' activities or of the costs in time and budgets of changes to an evolving build program. From the industry side, the absence of government oversight in conditions of limited commercial competition meant that there was no imperative to be either timely, efficient, or perhaps even transparent.

Disproportionate Distribution of Risk

The third major explanation for the loss of control of the Type 45 program relates to the government's use of a fixed-price approach that allowed (possibly even encouraged) the builder to submit bills for design changes and delays. According to one DE&S official, "fundamentally what happened was that the price was fixed while the design was still very immature." The usual practice of building the first of a class on a cost-plus basis to fix the price of subsequent ships was not followed.[48] In other words, the price established by the MoD for the Type 45 program,

though presumably based on expert analysis, was essentially notional and was quickly overwhelmed by contact with the real world of warship construction —particularly because many MoD-initiated design changes followed the signing of the contract.

The government had created a situation—a contract already signed with a private supplier, against an unrealistic program cost—in which design changes would rapidly lead to price inflation. According to the NAO, the government's emphasis on a fixed-price contract brought many "undefined elements" that allowed industry to claim costs through compensation.[49] This became especially problematic when, as was shown by the delay in developing Sea Viper, the government became vulnerable to the costs associated with slippages in overall construction. The government might have believed that by fixing the price in the initial contract it had shifted the risk to the supplier, but the reality was exactly the opposite.[50]

The Gray Report identified cost estimation as a problem area, particularly for an organization in which there has been an ingrained tendency to be overoptimistic about cost. The report suggested that "many participants in the procurement system have a vested interest in optimistically mis-estimating the outcome . . . [because] if the 'true' cost of acquiring a capability were stated . . . there is a danger that it might be thought too expensive to have at all."[51] This perversion of the procurement process is particularly likely where governments have track records of not canceling major equipment programs that run over budget but rather of persevering for politico-industrial reasons. As the history of the Type 45 program suggests, underestimating costs at the outset might well be a natural inclination if the armed forces doubt a government's appetite for large-scale spending on defense over the long term. However, there are consequences: not exposing the government to sticker shock may have significant political and budgetary repercussions later on. It may also erode the leadership's and the public's confidence in the defense bureaucracy, as both may feel that the implications of departmental decisions are being concealed. For example, by Sir Kevin Tebbit's own reckoning, there was recognition among MoD officials (of which he was the most senior) that the 1998 SDR, which had given birth to the Type 45 program, had underfunded the project by up to £500 million.[52]

Technology Risk

Technology risk is the fourth explanation worth noting. Modern naval platforms necessarily embrace new technologies, and the Type 45 was no exception. According to MoD officials, 80 percent of the equipment on the *Daring* class was new to service. This alone created enormous difficulties, as the systems the technology represented had to be integrated. Indeed, that task could not have been

accomplished without the creation of the Maritime Integration and Support Centre (MISC) at Portsdown Hill, which BAE Systems developed and constructed. However, the MISC was not operational until 2005, and as late as mid-2011, when HMS *Daring* was already in service with the RN, minor systems-integration issues were still being addressed.

However, technology risk was increased by the MoD's insistence on state of the art with its relative disregard of likely costs of or realistic timescales for its development. Nowhere is this more evident than in the Type 45's principal air-defense system. Britain's exit from the trilateral Horizon program in 1999 stemmed in part from differences in requirements between the partner navies, with the Royal Navy looking for a more capable system. The Sea Viper missile system mounted on the Type 45 (which benefited from the research and development work done on the trilateral PAAMS) is more advanced and is touted as highly capable, but it has suffered from cost escalation and delay. This in turn enabled the prime contractor to claim compensation when the system was not delivered to it on time. The RN was put in the uncomfortable position of sending HMS *Daring* for sea trials in late 2009 without the ability to fire a missile—an outcome the House of Commons Public Accounts Committee called "a disgrace."[53] A successful test firing from HMS *Dauntless* finally took place in September 2010. Still, the fact that by that time several captains and crews had served in the lead ship essentially unarmed illustrates the risks of striving for ultra-high-end technology solutions in a cost-constrained environment.

FAULTY EXPECTATIONS, DISPROPORTIONATE FAITH

The National Audit Office observed in its report that "the actual cost of the Type 45 destroyer, excluding development costs, is broadly in line with what could be expected for similar types of destroyer."[54] Although the development costs per ship would have been significantly less had the build program been larger, the NAO's conclusion points to an important factor in any discussion of the Type 45—that the government lost control of a program in part because it had not presented (or perhaps did not even have) a realistic estimate at the outset of what an advanced warship of this sort would cost. The problem-filled management of the program in its first years was the product, it would appear, of faulty expectations about cost and timing. Given that such issues were to some degree the result of the MoD's lack of clarity as to what it wanted from the Type 45 (this being due in part to the changing strategic environment), it is far from certain that greater expertise within the project team would have solved the problem. What is certain, as DE&S acknowledges, is that a more effective project-management structure, necessarily involving industry and qualified government representatives at all levels, would have more rapidly and jointly identified the problems.[55]

In the years since the initial contract was revised, the Type 45 program has seen no significant cost overruns and has been on schedule. There have been a number of technical problems associated with this class, but they have been quickly rectified, testifying to the positive relationship that industry and government have now created. Both MoD officials and the NAO credit the use of an incentive scheme, whereby greater industry efficiencies are rewarded, and a long-term maintenance arrangement as important factors in explaining this success. Also, clearly, many of the problems experienced in the Type 45 build are being taken account of as the Royal Navy moves toward the Global Combat Ship (Type 26 frigate) program.

The Type 45 program, which began with an initial requirement for twelve ships only to end up fourteen years later with six, was made vulnerable to truncation by a combination of factors: evolving perceptions of the strategic environment, disproportionate faith in technologies that planners were convinced would act as force multipliers, and, above all, faulty project management. The less-than-satisfactory outcome should give pause to decision makers elsewhere seeking to recapitalize their own fleets. If the above-mentioned problems befell a country with a long history of building sophisticated naval vessels, those with less experience and less money to correct programmatic errors may also see their naval construction projects and maritime security goals come to grief.

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THE OTHER ULTRA

Signal Intelligence and the Battle to Supply Rommel's Attack toward Suez

Vincent P. O'Hara and Enrico Cernuschi

Since the revelation of the ULTRA secret in 1974, it has been widely accepted that ULTRA intelligence—that is, high-grade Axis codes decrypted by a centralized British interservice unit called the Government Code and Cypher School (GC and CS) at Bletchley Park—gave Great Britain a decisive advantage over its Axis foes and that this advantage was particularly significant in the battle against shipping to North Africa. As early as 1977, Harold C. Deutsch, a historian and head of research for the OSS (or Office of Strategic Services, the World War II forerunner of the U.S. Central Intelligence Agency), concluded that the "systematic strangulation of [Rommel's] services of supply" due to knowledge of Axis schedules and convoy routes was a "decisive ingredient of British . . . victory in the Mediterranean." Deutsch's conclusions, reached thirty-six years ago, have been affirmed in official and popular histories and remain essentially unchallenged today.[1]

The geography of the North African campaign, which was fought from June 1940 to November 1942 between the forces of the British Empire and the Axis powers of Italy and Germany, dictated that nearly all materiel had to reach the front over water. In the case of the Italo-German army, shipments could only arrive at the widely separated ports of Tripoli, Benghazi, and Tobruk. These

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harbors had the capacity to handle just a few freighters at a time, which limited convoy sizes, and during the period of the greatest Axis advance, July–October 1942, they were far behind the front line. An additional difficulty the Axis powers faced was that a British base, Malta, lay astride the shipping lanes from Italy to Libya. Nonetheless, in June 1942 an Italo-German army advanced two hundred miles into Egypt and threatened the Suez Canal. The Axis planned to continue its advance to Cairo, Suez, and maybe beyond. But to do so it would need fuel, ammunition, men, vehicles, and other materiel, and this, except for some men and tiny quantities of fuel and munitions, could arrive only by sea.[2]

At this critical juncture the British made every effort to deny Field Marshal Erwin Rommel's Panzerarmee Afrika the materiel it required. According to the official history *British Intelligence in the Second World War,* written mainly by F. H. Hinsley, a Bletchley Park analyst, the ability of the British to intercept and decipher many Axis secret communications, especially those encrypted by the supposedly unbreakable ENIGMA device, gave them knowledge of the course and composition of every Axis convoy to Africa before it sailed. ULTRA contributed to the defeat of the Axis thrust to Suez because it allowed the targeted sinking of tankers and denied Panzerarmee Afrika the fuel it needed just prior to its last attempt to reach the Nile River on 30 August 1942. Hinsley writes, "Of the 48 Axis ships sunk in the period from 2 June to 6 November . . . only one (766 tons) was not reported to the Middle East by GC and CS, while for all but two of the remaining 47 GC and CS provided either the location in port or anchorage, or the timing or routing of the final voyage, in good time for the operational authorities to reconnoiter and attack."[3]

However, historian Ralph Bennett—a Bletchley Park translator, and the author of a work about ULTRA intelligence—writes, "But it is again permissible to wonder why [given such an advantage] the sinking rate was not higher."[4] Indeed, few historians have asked how Italy, with some German assistance, managed as it did to deliver the great majority of supplies dispatched to Africa. Over the course of thirty-six months, 2.67 million tons of materiel, fuel, and munitions were shipped to Africa—nearly all in Italian vessels and under Italian escort—and 2.24 million tons arrived. Deliveries exceeded 90 percent for seventeen months, and only twice, in November 1941 and May 1943, did the percentage of deliveries dip below half. Even during the decisive months of July and August 1942, prior to Rommel's last offensive, with ULTRA in full effect, with Malta basing offensive forces, critical supply ports within easy striking distance of Egyptian airfields, and submarines operating from Haifa, Malta, and Gibraltar, more than 85 percent of materiel dispatched from European ports reached Africa.[5]

This article examines the impact of intelligence in the war against Axis shipping in the two months leading up to the battle of Alam el Halfa, which concluded

on 2 September 1942. It demonstrates that ULTRA information was not always accurate or timely and that Hinsley overstates ULTRA'S impact by crediting it with sinkings that had nothing to do with either signals intelligence (SIGINT) or traffic to Africa. It also casts light on the role of the Italian navy's intelligence service, the Servizio Informazioni Segreto (SIS). The SIS provided intelligence that often offset the timely and relevant ULTRA SIGINT that Britain did possess. Its code breakers enabled Supermarina, the operational headquarters, located in Rome, of the Regia Marina, the Italian navy, to read, often in less than an hour, intercepted low-grade radio encryptions from British aircraft, and, more slowly, first-class ciphers from warships and land bases. Supermarina's communications and command system disseminated information in near real time, thereby amplifying the operational value of its SIGINT. This is a fact that the British were unaware of at the time and that has remained virtually unknown since.

THE SIS

The story of Great Britain's Government Code and Cypher School at Bletchley Park has been told in numerous histories. Italy's SIS is less famous. By 1940 it was organized into six sections *(uffici).* Section A was administration, Section B intercepted and deciphered enemy radio communications, Section C assessed and distributed intelligence, Section D operated foreign-based intelligence networks, Section E conducted counterespionage, and Section F supervised censorship. The SIS manned 150 radio-interception stations throughout Europe, North Africa, and the Middle East and operated motor fishing vessels in the Atlantic and Mediterranean as spy ships. As the war progressed Section B became the navy's most important source of intelligence, and its personnel grew from two dozen in 1940 to over two hundred by 1942, within an overall SIS staff of about a thousand. The SIS handled the bulk of naval intelligence activity in the Mediterranean, because German Abwehr (military intelligence) efforts were concentrated on Allied Atlantic radio traffic and Russian signals. Past practice had established a procedure wherein the Axis partners made a joint effort to crack high-value messages via teleprinter link between the two navies' intelligence services. Such coordination, however, diminished with time, and by July 1942 cooperation was minimal: the Germans considered the Italians undisciplined, the Italians found the Germans arrogant, and neither trusted the other.[6]

ALAM EL HALFA BUILDUP, JULY 1942

In July 1942, 94 percent of the 97,794 tons of materiel, fuel, and ammunition shipped from Italian and Greek harbors safely arrived in North African ports. The impact of SIGINT, both British and Italian, on this traffic can be demonstrated by examining how it affected the month's major convoys.

A convoy for Libya consisting of the motor ships *Monviso, Nino Bixio,* and
the German *Ankara,* escorted by three Italian destroyers and five torpedo boats,
departed Taranto on 2 July at 1300. At 1418 that day an ENIGMA decryption
alerted the British that this convoy had sailed. Route and escort details followed
in an ULTRA dispatch timed 1523/2 (that is, 1523, or 3:23 PM, on the 2nd): "Ship
Monviso and *Monviso* convoy . . . to follow coastal and safety routes until nought
four three nought [0430, or 4:30 AM] July third when *Sagittario* and *San Martino*
having carried out sweep from point Apple . . . are to join convoy which is to pass
a point possibly to south westward of Cape Gherogambo at one one hours Friday
third, when previous routes and instructions . . . are to apply."[7] This was specific
and timely intelligence, and the convoy subsequently ran a gauntlet of attacks
delivered by high-level and torpedo bombers from Malta and Egypt and by the
submarine *Turbulent.* Nonetheless, it arrived at Benghazi unscathed—an out-
come greatly influenced by the code breakers of the SIS's Section B, Ufficio Beta.

It was British policy that to protect special intelligence, only convoys that had
been first sighted via conventional means could be attacked. Thus, ULTRA was of-
ten used to position reconnaissance aircraft so they could "discover" convoys. On
the evening of 2 July the SIS intercepted a radio message timed 2040/2 from Malta

The Traffic War—July 1942
Transport Sinkings and Arrivals in African Ports

Arrivals:
from Europe
from other African port

Sinkings:
ULTRA related
non-ULTRA

Deliveries made by warships &
vessels under 500 t excluded

100   0   100   200   300

nautical miles
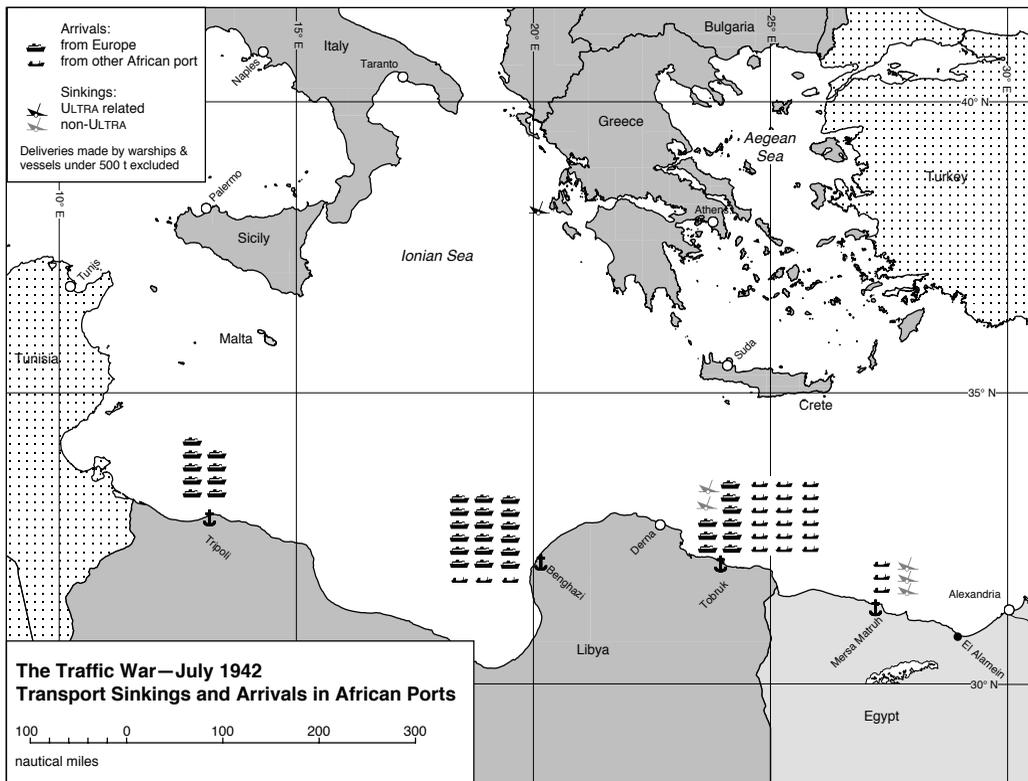
to the reconnaissance aircraft YU3Y and 86KK ordering them to change course and search thirty miles east of their present positions. The British communicated with operational units in such situations using a mechanical encryption system called SYKO. It consisted of lists that were moved by hand to disclose letters or numbers beneath them. The SYKO cards were changed daily, but combinations of them were often repeated after a brief time, helping the Italian code breakers in their task. As the messages were being decoded, radio direction finding (RDF) pinpointed the position of the reconnaissance planes as bearing 350 degrees from Benghazi, distant 150 and 90 miles, respectively. At 2140 on the 2nd, Supermarina issued a PAPA (*Precedenza Assoluta sulla Precedenza Assoluta,* or top-priority) warning to the convoy commodore, who immediately altered course to frustrate the enemy search.[8] Despite the course change, the reconnaissance aircraft H3TL radioed Malta at 0330 on the 3rd that it had found the convoy. The SIS intercepted this transmission, and Supermarina issued an alert within thirty minutes, resulting in another course alteration.[9]

Supermarina protected the security of its own communications by using pre-arranged hidden meanings for uncoded messages. For example, a plain-language message on a frequency the convoy commander monitored sent to the Venice arsenal checking the availability of a specific spare part could mean that the convoy had been discovered and had freedom to manuever independently. If more information was needed, a signal in the main Italian navy cipher—the *Stato Maggiore 16 Segreto* (SM 16 S)—or in the SM 19 S cipher followed. The high-grade SM 16 S code consisted of forty-five thousand groups, while the more commonly used SM 19 S comprised sixteen thousand. After a new edition was introduced in July 1940, neither code was ever broken. By the summer of 1942, in contrast, Bletchley Park could penetrate German Luftwaffe and railroad ENIGMA codes in a few hours, and German army and navy ENIGMA ciphers in up to forty-eight hours. These sources accounted for the large majority of ULTRA dispatches. Ciphers transmitted via Italian C 38 M, a medum mechanical code device first purchased by Italy from Sweden in 1940 to relieve traffic pressure on the one surviving telegraph cable between Italy and Libya and now used by the navy for administrative and transportation matters, was also vulnerable.

The interval between the reading of a PAPA dispatch by naval command and the dispatch of the first warning by the flag officer on duty in the Supermarina situation room was small, as the distance between the code breakers and the situation room was less than ten meters. This economical and effective method of disseminating intelligence, which Supermarina had evolved through two years of war, was dependent on Section B's ability to break British low-grade codes rapidly. Such codes by nature are less secure than high-grade codes, but part of their purpose is to delay the reading of traffic long enough to render the contents

of any given message of little value. Section B's ability to routinely produce transcriptions in well under an hour compares with times of more than three hours for interceptions made in Alexandria and Malta of radio transmissions from Italian reconnaissance aircraft.[10]

After the course change that followed the PAPA alert sent soon after the 0330 interception, the *Monviso* convoy steamed south without incident throughout the morning and afternoon of the 3rd. Then the SIS intercepted wireless messages transmitted by XZ3D at 1515/3 and 1613/3, reading them after eighteen and thirty-two minutes, respectively. These indicated an imminent threat; Malta had indeed ordered a strike of eight Beauforts into the air. At 2010 six of the raiders found the forewarned convoy and lost half their force. While the survivors claimed a probable hit, in fact they missed.[11]

Eighteen minutes after midnight on 4 July, aircraft N1KL broadcast a sighting followed by another at 0042; ZZ7P sent a third at 0100. Five Wellingtons from Malta, two armed with torpedoes and the others with five-hundred-pound bombs, were on the way, but the convoy's escorting destroyers had a thick smoke screen in place, and the best the Wellingtons could claim were near misses and a torpedo dropped blindly into the smoke. Finally, the next morning, the Royal Air Force (RAF) dispatched three Wellingtons and three B-24s from Egypt. The Wellingtons could not find the convoy, and the B-24s dropped bombs but missed.[12]

On the 4th, as the convoy coursed south, the submarine *Turbulent* intercepted and attacked at 1030 and again at 1415. The sonar-equipped torpedo boat *Pegaso* counterattacked both times and drove the submarine off. The merchant vessels finally entered Benghazi Harbor at 1845 on 4 July, bringing 8,182 tons of munitions and other materials, 1,247 tons of oil and lubricants, 439 vehicles, and seven tanks.[13] ULTRA had given the British timely notice of the convoy's departure and provided route and escort details, but Italian SIGINT had allowed the convoy to avoid at least one air attack and foil two others.

The next air/sea action was fought around a convoy consisting of the Italian freighters *Città d'Agrigento, Città di Alessandria,* and *Città di Savona,* the tanker *Alberto Fassio,* and the German steamers *Delos* and *Santa Fè,* protected by three Italian and three German escorts. This large force was the subject of an "Ultra Emergency" decrypt, timed 1756/7, that specified departure time and routing.[14] The convoy departed Crete's Suda Bay bound for Tobruk at 2140 on the 8th and proceeded peacefully throughout the 9th, as German fighters intercepted the sole British response, a flight of five B-24s from Egypt.[15]

Supermarina anticipated renewed attacks after the SIS deciphered transmissions made at 1715 and 1815 by reconnaissance plane 7XGD reporting seven steamships and four destroyers heading south. A subsequent report by the same aircraft at 2000 (8 PM) generated a PAPA alert twenty-five minutes later.[16]

Meanwhile, Egypt launched ten torpedo- and six bomb-armed Wellingtons. Of the torpedo bombers only two found the convoy, reporting that "smoke screen hampered attack and results unobserved"; the bombers released their weapons and incorrectly claimed two hits on a destroyer. Supermarina followed the action by reading signals made by individual bombers to Alexandria at 2245/9, 2349/9, and 0105/10.[17] A second night attack by four Albacores (of eight that took off) incorrectly claimed one probable and two possible hits. A force of nine Hudsons could not find the convoy (with one exception) until after dawn and their attack was "driven off by intense A.A. [antiaircraft fire]." Finally, six Beauforts sortied but could not locate the enemy. The undamaged convoy entered Tobruk's wreck-filled harbor at 1350 on the 10th. SIGINT had kept Supermarina informed of what the enemy knew and had forewarned the convoy commander of attacks. An ULTRA dispatch of 1927/10 (2127 local) informed Cairo that the convoy had arrived, invalidating the claims of the Wellingtons and Albacores.[18]

The sheer volume of decrypts that flooded the British at the Middle Eastern command was daunting. To take the day of the convoy's arrival as typical, Cairo received sixty-eight Ultra dispatches—sixteen of them categorized as "Emergency" or "Ultra Emergency"; twenty-six of these related to Axis shipping. A typical emergency message read, "Auxiliary sailing vessel *Arsia* was expected to sail probably at nought two nought nought hours today tenth. Its cargo, intended for Panzer Army[,] included one nought nought tons orange fuel in cans. Comment, port of departure is probably Derna, destination possibly Mersa Matruh" (2019/10 in July 1942). The vessel's name was actually *Arria,* and its seventy-five tons of cargo arrived in Matruh on 15 July.[19]

THE COASTAL ROUTES

Mersa Matruh, captured by Rommel on 28 June, was important because its tiny harbor was only a hundred miles behind the front line. On 3 July the Regia Marina command at Tobruk dispatched to Matruh the small steamship *Pontinia* with desperately needed munitions. The voyage, under the escort of an Italian gunboat, was uneventful—perhaps helped by a PAPA message sent on 4 July at 2300, forty-eight minutes after the interception of orders from Alexandria for two aircraft to attack the ship.[20] The planes searched vainly, and 535 tons of munitions were landed on 5 July. Pleased by this initiative, Vice Admiral Eberhard Weichold, chief German liaison with Supermarina and commander of German Naval Command, Italy, ordered the German freighters *Brook* and *Sturla* to ferry 1,200 tons of munitions to Matruh. They arrived on 8 July and had discharged their cargo by the morning of the 11th. No escort was immediately available for their return voyage, so the freighters remained and were sunk on the night of 11/12 July in a bombardment delivered by British destroyers.

Hinsley cites this action as a case where ULTRA intelligence produced a British success, on the basis of a dispatch timed 1025/9, the day after the transports arrived, indicating that both would be sailing to Mersa Matruh.[21] *Sturla* and *Brook* were completely unloaded when sunk, and the British destroyers caught them in port only because (unknown to the British) maintenance issues prevented the German motor minesweepers that were supposed to escort them back to Tobruk from sailing. Subsequent ULTRA dispatches also indicated that "this action blocked Matruh even to supply submarines" and that the sinking of *Brook* and *Sturla* and the destruction of a tank depot in Tobruk Harbor had caused the loss of two hundred tons of ammunition and 180 tons of fuel. These dispatches are examples of the unreliable information that ULTRA often generated: in fact, the motor ship *Città d'Agrigento* arrived at Matruh on 16 July with 460 tons of artillery and munitions, while, as related, the two transports were empty when sunk.[22]

Weichold retained *Città d'Agrigento* at Matruh, thinking to use the vessel as bait for an S-boat (fast motor-torpedo boat) ambush in conjunction with a newly established German-manned Freya radar station. S-boats foiled a bombardment on the night of 18/19 July, but the Royal Navy returned the next night with two cruisers and six destroyers, including two of the Hunt class assigned to deal with the small torpedo boats, and sank *Città d'Agrigento*. The British learned of their success in an ULTRA dispatch timed 0452/22. In another example, however, of how the German messages the British were reading often contained provisional or inaccurate information, this one indicated that the ship had received four hits when in fact there had been only one.[23]

During the following weeks a constant flow of Italian and German landing craft, small steamers, and trawlers arrived at Matruh. Numerous ULTRA dispatches dealt with the subject of "lighter" traffic, but many of these transits were also supported by opportune PAPA messages. By 1 September ninety-one small-craft voyages had delivered more than ten thousand tons of materiel to Matruh. Although some craft were damaged or stranded in dozens of attacks by RAF fighters and bombers, their cargoes were preserved, or losses occurred in harbor (where the cargoes were recoverable), or in transit empty back to Tobruk.[24]

THE HIGH SEAS: CONVOY BATTLES CONTINUE

The motor ship *Rosolino Pilo* sailed from Brindisi at 2150 on 20 July, escorted by two destroyers and two torpedo boats. An ULTRA dispatch timed 1124/21 based on the decryption of a Luftwaffe ENIGMA message advised Cairo that the Germans were arranging an air escort for the convoy on the 22nd. However, at 1130, a dozen Beaufort torpedo bombers of 217 and 39 Squadrons attacked *Pilo* off Navarino, Greece. There was no PAPA warning. The pilots claimed a hit, and an ULTRA dispatch timed 1558/21 indicated that *Pilo* had been torpedoed and was to

meet a tug, but the attack had actually failed. Less than an hour later a follow-up "Emergency Plus Z" ULTRA decryption disclosed that there was a "slight indication" that *Pilo* was continuing to Benghazi. This was confirmed by another emergency transmission at 1816/21 that in fact the Beauforts' torpedo had missed and the convoy was "almost certainly continuing to Benghazi." At 2003/21, however, a third ULTRA Emergency message stated that *Pilo* was now heading for Navarino, where two torpedo boats would supplement its escort.[25]

Pilo did make a detour to Navarino, but it then circled back toward Benghazi. An ULTRA dispatch timed 0334/22 disclosed the new route. On the 23rd, twelve B-24s ineffectively attacked *Pilo* off Benghazi. The motor ship moored in Africa at 1700/23 with nineteen tanks, 106 other vehicles, 717 tons of fuel, 146 soldiers, and 2,907 tons of materials and munitions. Although ULTRA had meticulously tracked the ship's passage, in several cases it had broadcast wrong or confusing information about its fate and route.[26]

At 1300 on 23 July, the motor ship *Vettor Pisani* and two torpedo boats departed Taranto for Tobruk. At 0140 on the 24th the reconnaissance aircraft QZ7J—acting on ULTRA dispatches timed 1701/22 and 0023/23 specifying estimated departure time, course, and speed—sighted the little convoy. The SIS intercepted the aircraft's report and generated a PAPA alert at 0210. A 0103/24 broadcast from a different British aircraft led to a second PAPA at 0235, while a follow-up report from QZ7J at 0237 provoked a third PAPA, at 0405.[27] Despite these alerts, six Malta-based Beauforts found the *Pisani* convoy at 0730. After dropping five torpedoes they observed an explosion, dark smoke, and a reddish blaze. One weapon had struck, and *Pisani* was stranded at Cephalonia. At first it seemed the damage could be repaired, but the fire continued to burn uncontrolled, and the vessel became a total loss. ULTRA confirmed the attack's success at 1051/24.[28]

On 25 July the steamships *Milano* and *Aventino,* each loaded with vehicles, materiel, and more than nine hundred troops, and escorted by seven destroyers and torpedo boats, departed Bari for Benghazi via Piraeus. At 0325/26 a PAPA advised that three torpedo bombers from Egypt were searching for the convoy. Knowledge of the enemy's radio frequencies and the liberal use of radio by pilots flying over the night sea allowed the Regia Marina RDF station at Porto Palo in Sicily to track the searching aircraft. The next evening Porto Palo detected a British submarine positioned on the convoy's route and sent at 1950/27 a PAPA alert that resulted in an evasive course change. Meanwhile, Cairo had received an ULTRA dispatch timed 1713/27 that the two steamships were bound for Piraeus and "thence for a port unknown." This was confirmed at 2127.[29] The SIS rapidly broke four more air reconnaissance messages on 29 July and directed the convoy around threats. On the 29th the *Milano* convoy entered Suda Bay, where it experienced an unsuccessful attack by eleven B-24s. The ships then sailed at

2330. *Milano* arrived safely at Benghazi at 0945 on the 31st, followed by *Aventino,* slowed by engine damage, three hours later. An emergency dispatch timed 0736/30 had advised Cairo of their departure from Suda, but the next Ultra message, timed 2015/30, stated that the ships were scheduled to return to Piraeus from Benghazi at 1000 on the 31st. Considering this was before *Aventino* even arrived at Benghazi, the message was clearly incorrect. A subsequent dispatch timed 0355/31 clarified that they were expected to dock in Benghazi on the 31st. News of *Aventino*'s engine problems arrived in Cairo at 1321, nearly three hours after the ship had made port.[30]

On 28 July at 1210 six Beaufort torpedo bombers and three Beaufort bombers attacked *Monviso,* which had departed Brindisi at 1515 the day before. The interception was based on a routine sighting made at 0700 on the 28th and not on special intelligence. The aircraft scored one torpedo hit from five dropped, disabling the motor ship, which was subsequently towed to Navarino. The only related Ultra dispatch, timed 1917/28, informed Cairo that *Monviso* had been hit and towed to Navarino.[31] On 1525 on 3 August the submarine *Thorn* sank *Monviso,* which—its air-attack damage being slight—had departed Navarino for Benghazi the day before, escorted by two destroyers. The Ultra dispatches pertaining to *Monviso* after the air attack were one of 29 July, disclosing that the ship would be repaired and continue its voyage, and another sent on 1230, 3 August, specifying that it had been due to arrive at Benghazi on the 2nd.[32]

For July, Hinsley credits Ultra with contributing to the sinking of five Axis transports in the Mediterranean.[33] During the month forty transports and tankers departed Italian and Greek ports bound for Africa. Thirty-eight arrived. The destruction of *Vettor Pisani* was properly attributable to Ultra information. In the cases of the other vessels claimed—*Brook, Sturla, Città d'Agrigento,* and *Delos* (sunk after it had unloaded by a bomber night raid at Tobruk on 30 July)—Ultra provided administrative information, such as the fact that a vessel had arrived at its destination, or the results of a prior attack. It did not provide information that contributed to the ship's actual destruction.

AUGUST CONVOYS

During the first two weeks of August, traffic continued to pass routinely to Africa. An Ultra dispatch timed 1858 on 30 July had provided Cairo with the departure date and route of the motor ship *Tergestea,* which sailed at 1200 on 1 August from the Corinth Canal. Nonetheless, it arrived at Benghazi on the 3rd after a peaceful voyage. On 4 August the steamship *Tagliamento* docked at Benghazi. Ultra had alerted Cairo to the steamship's sailing arrangements on 29 July. However, its safe voyage was aided by a PAPA warning, transmitted at 2150/3, of a suspected submarine threat; this followed an urgent British broadcast made by Malta to all

boats at 2125/3 on the basis of a sighting report generated by aircraft QZ7J. That message was followed by a 0100/4 communication from the same aircraft that it had attacked but had not observed any results.[34]

On 3 August at 0600 the motor ships *Sestriere* and *Nino Bixio,* protected by two destroyers and three torpedo boats, departed Brindisi. Three hours before, *Ankara,* accompanied by four destroyers, had left Taranto. Cairo had news of these sailings from ULTRA dispatches of 31 July and 1, 3, and 4 August giving sailing arrangements, courses, and projected arrival data.[35] The two convoys united at 1930 on the 4th and underwent a series of air strikes, starting with an ineffective high-level dusk attack by ten B-24s 150 miles northwest of Derna. Ten torpedo-armed Wellingtons, from Malta, struck later that night. A PAPA warning sent at 0115/5 arrived after the British pathfinders had already illuminated the convoy with flares. Nonetheless, using very-high-frequency ship-to-ship radiotelephone communications and the flotilla leader *Legionario*'s German-made radar, the convoy commander confounded the torpedo bombers. The Admiralty War Diary noted, "Smoke screen from Destroyer escort prevented observation [of] results." In fact, there were no results to observe. The convoy completed its voyage without further incident, docking that afternoon in Tobruk and Benghazi. The

The Traffic War—August 1942
Transport Sinkings and Arrivals in African Ports
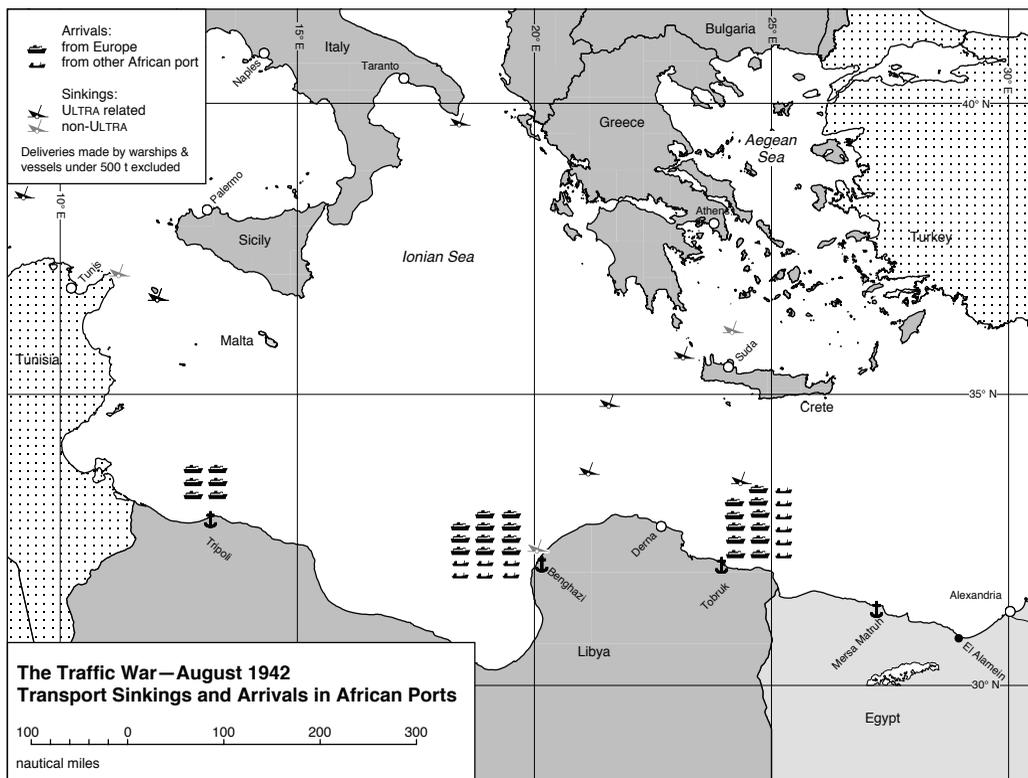
ships discharged eighty-eight tanks, 340 motor vehicles, 4,381 tons of fuel and lubricants, and 5,227 tons of materials and munitions.[36]

On 6 August the submarine *Thorn* attacked and missed the Italian tanker *Rondine,* sailing from Africa to Greece. On the 7th the same boat launched against the freighter *Istria,* again without success, and was sunk by *Pegaso*'s counterattack. On 7 August the submarine *Proteus* fruitlessly stalked the lucky *Rondine*. On 8 August the submarine *Unbroken* attacked without result the steamer *Algerino,* returning to Italy in ballast. On 10 August the submarine *Utmost* missed the freighter *Siculo*. None of these encounters were the result of special intelligence, although an ULTRA dispatch dated 4 August had disclosed the sailings of *Rondine* and *Istria*.[37]

On 7 August, *Proteus* sank the German freighter *Wachtfels*. Hinsley considers this an ULTRA contribution to Axis shipping losses, on the basis of a dispatch dated 4 August that *Wachtfels* would be leaving Suda for Tobruk on the 8th or 9th. *Proteus* was in the area when *Wachtfels* got under way on the 6th and sank the large German steamer on the next morning. Notice of *Wachtfels*'s departure was deciphered and forwarded to Cairo twelve hours later. This episode is an example of how ULTRA often repeated outdated information. Moreover, *Wachtfels* was sailing in ballast north from Suda to Piraeus, not south to Benghazi as ULTRA indicated.[38]

On 9 August the steamer *Aprilia* entered Tobruk. It had departed Suda at 1905 on the 7th and had changed course that night after a PAPA warned it that it had been discovered by an aircraft, which was urgently requesting a torpedo-bomber attack. On 10 August *Santa Fè* docked in Benghazi, a fact noted in a dispatch timed 2204/11 that stated, "An unidentified ship arrived Benghazi from Italy on Monday tenth." This was accurate, but a follow-up emergency message timed 1803/16 reported that "the unknown ship mentioned [on the 11th] left Benghazi on fifteenth in ballast for Suda." If this message inspired any offensive activity it was in vain, because no ships departed Benghazi that day. A signal advising that the mystery ship's departure had been delayed was received the morning of the 17th (along with a provisional identification). *Santa Fè* actually departed Benghazi on the 20th.[39]

Acting on good information, *Porpoise* sank the Italian steamer *Ogaden* on 12 August off Ras el Tin. The critical dispatch, generated at 0233/12, had stated that the target was bound for Tobruk along the coastal route and would be off Derna at 0430 on the 12th. *Porpoise* was laying mines off Sollum and command had advised the submarine to expect its eventual quarry. There was no offsetting PAPA.[40] On the night of 14/15 August the submarine *Taku* missed the German freighter *Menes,* which was returning to Europe. Next it sighted the Italian navy tanker *Stige* and attacked, again without result; *Stige* passed the booms of Tobruk on 15 August. At sunset that same day the submarine *Porpoise* attacked a convoy

formed by the motor ships *Lerici* and *Ravello,* escorted by a destroyer and three torpedo boats. *Porpoise* sank *Lerici* and was then damaged in a counterattack by the torpedo boat *Polluce*. An ULTRA dispatch timed 0712/9 had advised Cairo of the convoy's escort and ports of departure, and another at 1801/13 gave course details. Supermarina generated two PAPA messages to the commander warning that his convoy had been discovered by enemy air reconnaissance, but this notice did not allow him to avoid the submarine.[41]

On 16 August *Menes* avoided another submarine attack, this time by *Porpoise*. The same day, *Ravello* arrived at Benghazi and the steamer *Davide Bianchi* made Tobruk. *Bianchi*'s escort, the German destroyer *Hermes* and the Italian torpedo boat *Partenope,* repulsed a daylight torpedo-bomber attack on the 15th and another one the following night. Both enemy air raids had been preceded by PAPA warnings broadcast to *Partenope* only, as Supermarina withheld its decrypting abilities from the increasingly distrusted Kriegsmarine (in part because of a suspicion that German ENIGMA transmissions were compromised). An additional wireless message, sent to the torpedo boat at 0315/16, twenty minutes after the SIS intercepted it, read: "I lost touch with the enemy." This helped reduce the tension of those endless dark hours at sea.[42]

At 1633 on 17 August *Turbulent* launched torpedoes against *Nino Bixio* and *Sestriere,* which were returning from Libya. The attack damaged *Bixio,* which was taken in tow. This convoy was the subject of a number of ULTRA dispatches, the most relevant being ones timed at 2104/16 and 0101/17 GMT stating that the convoy would be receiving an air escort and giving route details.[43]

SPECIAL TARGET: TANKERS

As British aircraft and submarines stalked Italian transports, a battle was brewing among the Axis leadership. After concluding the action against the mid-August PEDESTAL convoy to Malta, Marshal Ugo Cavallero, the Comando Supremo's (high command's) chief of staff, and Marshal Albert Kesselring, commander of Oberbefehlshaber Süd, returned to their top priority—the capture of Suez before the constantly monitored British buildup rendered such a conquest impossible. Following the end of the Axis offensive at El Alamein on 2 July, Rommel had received supplies in volumes 50 percent greater than the army's monthly consumption. He had, however, doubts about a renewed offensive. Sixteen months of stress and hard living in the desert had undermined his own health.[44] Kesselring landed in Egypt on 17 August to persuade Rommel to undertake this last effort. In response the latter complained about a lack of supplies and the Italian navy's failure to deliver them. It was an old song, one that played well in Berlin but not with Kesselring, a former artillery officer well versed in logistics. Despite the tale told by the actual numbers, Rommel stated that he needed thirty thousand

additional tons of fuel, 2,672 tons of munitions, and five hundred vehicles. Everything would have to be at the front by the day of the attack, scheduled to start on the night of 30 August. It was an unrealistic request, as fuel deliveries to North Africa had never exceeded twenty-four thousand tons during a fortnight. After haggling, the two field marshals finally agreed that in the thirteen days before the offensive began Kesselring and Comando Supremo would arrange for the delivery of an additional 5,700 tons of fuel, 2,000 tons of munitions, and 295 vehicles.[45]

As these increased goals were being negotiated, routine deliveries continued. On 1540 on the 17th, six Malta Beauforts attacked the motor ship *Rosolino Pilo* and two destroyers bound for Tripoli. After long-range Spitfires and Beaufighters drove off the convoy's Ju 88 air cover, the Beauforts dropped their weapons from six hundred yards. One torpedo struck, leaving *Pilo* dead in the water and down by the stern. Later that night the submarine *United* found the stricken freighter and torpedoed it from close range, sparking a gigantic explosion. An ULTRA dispatch from 14 August had disclosed that *Pilo* was ready to sail and gave cargo details. There was no PAPA alert.[46]

This sinking did not affect the agenda for Rommel's offensive, as *Pilo*'s cargo had been intended for units in Tripolitania. The motor ship *Città di Alessandria,* however, was loaded with a portion of the promised additional supplies. It departed Suda on 18 August. A PAPA message transmitted at 2200/18, twenty minutes after the interception of an RAF sighting, arrived too late: twelve Wellingtons (five of them torpedo bombers) had already found the ship and its two escorts. However, and although a "possible torpedo hit on 6,000 ton M/V [motor vessel], followed by smoke and sparks," was claimed, their attack failed.[47] The merchant vessel arrived at Derna the next morning and continued to Tobruk. An ULTRA dispatch timed 2230/18 contained some tentative information regarding its sailing arrangements: "Sometime previous to 1650 Tuesday 18th [convoy] was to proceed on course of 270 degrees for 40 miles to make landfall at Derna. . . . [C]omposition of convoy not known." After that there was nothing until a dispatch confirmed its arrival in Tobruk four hours after the fact.[48]

On 19 August the tanker *Pozarica* received a PAPA warning that helped it and its escort avoid an air attack, but at 0856 the next day off Corfu a dozen Beauforts of 39 Squadron and ten Beaufighters out of Malta attacked and hit *Pozarica* with one torpedo out of twelve dropped.[49] Despite the damage, *Pozarica* gained the Ionian coast. On 21 August nine Beauforts from the same squadron with five bomb-armed Beaufighters struck again. They dropped nine torpedoes from seven hundred yards and claimed three successes. Despite all, *Pozarica* remained afloat and later returned to Italy. The sailing of this vessel, its route, escort, and cargo had been the subject of a series of ULTRA dispatches, the most critical being timed 0311/19 (sailing arrangements) and 0450/20 (departure). *Pozarica*'s cargo

had not been lost, but it had not been delivered to Rommel's tanks, and the field marshal's nervous entourage began to protest loudly.[50]

Just before noon on 23 August the steamer *Pugliola,* escorted by two destroyers and one torpedo boat, entered Tobruk. A PAPA message generated at 1740/21 told Supermarina that an hour earlier 7XGZ had sighted the convoy south of Crete. This helped offset an ULTRA dispatch timed 1431/21 that *Pugliola* was at sea.[51] The vessel delivered 1,860 tons of munitions and materiel, all of which was loaded onto motorized barges and immediately transshipped to Mersa Matruh. Also on the 23rd, seven barges arrived in Tobruk directly from Italy with a hundred tons of munitions, which they delivered to Matruh the following day. On the 22nd the barges had received a PAPA message advising that an RAF aircraft had sighted them. The 23rd was a busy day at Tobruk, as the tanker *Alberto Fassio* also arrived after a layover at Derna. Sixteen B-24s, ten of them U.S. Army Air Forces (USAAF) aircraft, had unsuccessfully attacked that ship on 21 August.[52] The tanker pumped 2,740 tons of fuel ashore that day. The passage of this vessel was well documented by ULTRA dispatches—its sailing arrangements on the 19th, its departure on the 21st, and details about its air escort on the 22nd—and Italian counterintelligence was lacking; the unsuccessful attack shows that even under the best of conditions, stopping a targeted vessel was never a given.[53]

These events highlighted a dilemma the British and Italians both faced—resource allocation. The Italians never had enough ships to provide the strong escorts that could defeat most air and submarine attacks. As for the British, while they could send nightly strikes of up to forty Wellington and Halifax bombers against Tobruk—raids that accomplished little, notwithstanding extravagant claims filed regularly about ships blowing up and fires burning unchecked—the Admiralty felt it necessary to withdraw its two naval air torpedo squadrons, nine Albacores, from Malta because "they had insufficient Albacores to permit maintaining 9 in Malta." Thus, despite ULTRA intelligence, a steady stream of freighters and tankers arrived in African ports without undergoing any attack whatsoever—like the German steamer *Kreta,* which arrived at Tobruk on 25 August with 382 tons of fuel, or *Savona* at Tripoli on the 27th, *Sibilla* at Tobruk on the 27th, the tanker *Caucaso* at Benghazi on the 28th, or *Armando* at Tripoli on the 1st of the following month.[54]

At 0240 on 27 August the tanker *Giorgio,* which had departed Piraeus at 0615 the day before, received a PAPA indicating that at 0208 aircraft T6RX had sighted it off Cape Spada, Crete's western extremity. This intelligence was hardly news, because, as the escort commander later reported, "you can pretty much say that the convoy was, at night, continuously followed by aircraft from the first attack off Cerigotto until her arrival." This surveillance was a consequence of multiple ULTRA dispatches regarding the tanker's course and escort. Five Wellingtons out

of Egypt attacked first off Antikythera (Cerigotto), north of Cape Spada, and incorrectly claimed a hit. After an unsuccessful raid by ten USAAF B-24s and a strike by six Egypt-based Wellingtons off Derna the next night, the tanker and its escort ducked into Derna, finally reaching Tobruk on 28 August bringing 2,345 tons of fuel, with an extra two hundred tons in barrels stored on deck.[55]

Not so fortunate were the freighters *Istria* and *Dielpi*. They departed Suda at 2300 on 26 August protected by the German destroyer *Hermes* and two Italian torpedo boats; the two separated shortly thereafter, *Dielpi* heading to Benghazi and *Istria* to Tobruk. Early on the 27th Cairo received an emergency dispatch specifying Luftwaffe convoy-escort assignments for the upcoming day. This long and important message betrayed the route of a number of ships, including *Istria, Giorgio,* and *Tergestea*. In some respects, being given a German air escort guaranteed trouble for an Italian convoy, as GC and CS rapidly broke Luftwaffe messages that contained such useful details as rendezvous points and schedules (although these were sometimes later changed). Moreover, in this instance the convoy commanders were not favored by a PAPA warning. At 1830 on the 27th nine Malta-based Beaufort torpedo bombers of 39 Squadron and five bomb-armed Beaufighters jumped *Dielpi*. They hit the freighter with two torpedoes and one bomb, accurately reporting that they had left the motor vessel "ablaze and sinking with decks awash and back broken." This outcome rendered superfluous a follow-up ULTRA dispatch timed 2132/27 disclosing the rendezvous point where German fighters from Africa were to meet the convoy. Nine Egypt-based Wellingtons found *Istria* at 2348. They claimed two torpedo hits and observed explosions and clouds of smoke. In fact one torpedo struck astern and detonated the cargo of munitions; *Istria* sank in just four minutes.[56]

These losses provoked a storm of criticism in Berlin against the protection provided by the Italian navy, even though one of the convoys had been a German responsibility. Mussolini, seriously ill since June and in mental and physical decline, ignored the protests of Marshal Cavallero and the navy's chief of staff and adopted his powerful ally's point of view.

On the 27th the submarine *Umbra* sank the motor ship *Manfredo Camperio,* which was sailing with *Tergestea*. The details of this convoy had been contained in the same alert that betrayed the *Istria* and *Dielpi* convoys, and *Umbra*'s captain was ordered to the spot, where he eventually made the interception.[57] That afternoon, after the loss of *Camperio,* a PAPA message reached *Tergestea,* which changed course to avoid a forecast air attack. No further threat materialized, and *Tergestea* arrived at Benghazi on the 28th with 279 vehicles, 117 tons of fuel, 520 tons of munitions and materials, and 206 soldiers. The arrival of *Tergestea*'s cargo meant that despite the nonarrival of *Istria, Dielpi, Camperio,* and *Pozarica,* Rome had delivered the extra fuel Rommel had requested to conduct his 30 August offensive.[58]

Italian naval SIGINT sometimes served an offensive role. On the morning of 26 August the SIS detected unusual radio activity emanating from a British destroyer flotilla.[59] The naval commandos of Decima Flotilla MAS had just activated near Matruh a unit with three MTSMs—eight-ton, torpedo-armed motorboats. At 2250 on the 27th, after a delay of 110 minutes, the SIS cracked an order broadcast with the utmost urgency from Alexandria ordering a sortie by two units believed by the analysts to be surface warships. A pair of MTSMs ventured to sea that night but waited for the enemy in vain. The next day Italian marines seized near the Decima Flotilla MAS base an enemy agent who was there to spot for a naval bombardment against the base scheduled for the night of 28/29 August. The British flotilla duly sortied, noted the planned light signal, and opened fire against open desert. During the action the prepositioned *MTSM 228* torpedoed the Hunt-class destroyer *Eridge,* damaging the ship beyond repair.[60]

During this episode the usual traffic to Africa continued. In fact, on 27 August the British learned that "great congestion" in Tobruk Harbor was causing a backlog in the unloading of supplies, another confirmation of the fact that the most stringent limitation on Axis resources in Africa was port capacity and transportation infrastructure, not the destruction of shipping.[61] On 28 August the steamer *Unione,* protected by two destroyers and two torpedo boats, entered Benghazi. On 29 August the slow steamer *Algerino* made Tripoli with a cargo of local needs, followed on 1 September by *Armando*. These voyages received some mention in ENIGMA decryptions, but none were the subject of emergency ULTRA dispatches.[62] On 30 August the steamer *Anna Maria Gualdi* entered Tobruk loaded with 1,600 tons of fuel for the German army. Its voyage was the subject of six ULTRA dispatches discussing the ship's cargo, its projected departure and course, revisions to its course, and details of its escort. However, the *Gualdi* convoy benefited from two PAPA messages, avoiding on the 27th the submarine *Umbra* and then, over the night of 29/30 August, a series of air strikes. First Wellingtons from Egypt made four single attacks, followed by one attack of four planes and another of five. Reports described explosions and a stationary motor vessel on fire, but in fact the last attack, wherein the bombers could not locate their target owing to a smoke screen, went the same way as all the others—without results.[63]

Rommel launched his offensive on 30 August, immediately encountering from the Eighth Army stiffer resistance than anticipated. In fact, thanks to ULTRA, the British obtained his plan of attack on 17 August, lacking only the exact date. On the offensive's launch date *San Andrea,* a tanker carrying fuel for the anticipated advance beyond the Nile, departed Taranto at 0530. Thirteen hours later, eight 39 Squadron Beauforts from Malta jumped *San Andrea* and its escort, the torpedo boat *Antares,* and hit the tanker with one torpedo from four dropped. The aircraft reported leaving their target "in flames having exploded throwing debris high

into the air." The air umbrella of eight Italian C. 200 fighters could not break up the attack. *San Andrea* had been mentioned in six ULTRA dispatches, the most important, timed 2138/29, covering course and schedule.[64]

This loss caused uproars in Rome and Berlin. The Regia Aeronautica was openly accused of carelessness. The air force chief of staff replied that the loss had to have been caused by espionage, as no British reconnaissance aircraft had been sighted before the strike. Mussolini and Kesselring embraced this explanation, which relieved them of any responsibility, and the witch hunt was on. Rommel learned of this sinking the next day, and though *San Andrea*'s load would not have affected the battle fought on the night of 30/31 August, he too embraced the idea that Italian traitors had sabotaged his surprise attack.

On 31 August an important convoy of two tankers, *Picci Fassio* and *Abruzzi,* protected by two torpedo boats departed Suda, planning to arrive at Tobruk on 2 September. Though Rommel had canceled his offensive by the time of their scheduled arrival, their fate is often associated with his defeat. After the criticism sparked by the loss of *San Andrea,* all the SIS's resources were dedicated to their protection. The convoy received three PAPA warnings but could not avoid a raid by a trio of USAAF B-24s at 1930 on 1 September. In a rare instance of effective high-altitude strike, near misses brought *Abruzzi* to a stop. However, five RAF Hudsons were unable to locate their target.[65] *Abruzzi* was eventually towed to Ral Hilal Bay, where its cargo of 484 tons of fuel was recovered; the ship returned to Italy three months later. A dozen Wellingtons attacked *Picci Fassio* on the night of 1/2 September, and one scored. The tanker sank with the loss of thirteen men and 2,945 tons of fuel, betrayed by a German air force message of 1500/1, specifying the convoy's route for the following day, that GC and CS passed on to Cairo in an ULTRA "Emergency + Z" dispatch timed 0105/2. These two ships were mentioned in at least ten other ULTRA dispatches, the most important being timed 2327/28 and 0327/29, discussing their route and escort arrangements.[66]

On 2 September the freighter *Bottiglieri* arrived at Benghazi. It had been part of the *Picci Fassio* convoy until the evening before, when it and its torpedo-boat escort went their separate way. Although its voyage had been detailed in the Luftwaffe message that was *Picci Fassio*'s undoing, *Bottiglieri* made port unmolested, assisted by a PAPA message that day. On 3 September the navy tanker *Stige* entered Tobruk Harbor with 630 tons of gasoline. Its original departure date, course, and escort had been specified in a message timed 2355/31 but two PAPA messages helped it and its escort, the destroyer *Hermes,* avoid trouble during their slow crossing of the Mediterranean.[67]

The battle of Alam el Halfa ended in stalemate on 2 September. The numbers for August 1942 were 77,134 tons of supplies shipped, of which 51,655 tons, or 67 percent, arrived, including 22,500 tons of fuel (59 percent) and 3,628 tons of

munitions (77 percent). Thirty-seven transports and tankers departed Italian and Greek ports bound for Africa during the month, of which twenty-seven arrived. Of the ten that did not make it, ULTRA figured in the loss of seven: *Lerici, Rosolino Pilo, Ogaden, Manfredo Camperio, Istria, Dielpi,* and *San Andrea.* However, as Kesselring stated after the war, it was not fuel or munitions that lacked at Alam el Halfa but surprise and will against an enemy that was too strong.[68] The myth of Rommel's tanks being halted by the ULTRA-directed sinking of tankers has, however, dramatic appeal and has become a persistent article of legend.

After Alam el Halfa the tonnage war continued. In September the Axis forces received 77,526 tons of supplies, or 80 percent of the amount shipped, but in October receipts dropped to 46,698 tons, only 56 percent of shipments. In November the British finally broke out of the El Alamein position, and the Anglo-Americans invaded Algeria and Morocco. These events guaranteed the doom of the Axis African bridgehead, although six months of hard combat and bitter convoy battles remained to be fought before the last Axis soldiers passed into captivity.

A GAME OF INCHES

The content and detail of the thousands of ULTRA dispatches sent to Cairo in July and August 1942 are truly impressive, and it is not surprising that the assertion of historians like Hinsley and Bennett that ULTRA played a decisive role in denying Panzerarmee Afrika the supplies it required to conquer Egypt has been so universally accepted. However, their histories and those based on them do not consider the thousand-plus dispatches the SIS generated each month from decryptions of British radio traffic, the remarkable timeliness of these decryptions, or Supermarina's system to exploit that timeliness and the impact that it had on the operational value of Italian decryptions.

This detailed examination of SIGINT's role—both British and Italian—in the traffic war fought during these critical months suggests that Great Britain's offensive use of SIGINT was largely negated by Italy's defensive SIGINT. ULTRA did not deny the Axis armies the supplies they needed to reach the Nile—if indeed a lack of supplies was the cause of the Axis failure. This reality is obscured by the fact that historians have overreached for evidence to prove the power of signals intelligence. Hinsley, for instance, adds to the ULTRA bag of Axis shipping losses on North African routes the Italian steamer *Paolina,* sunk on 27 August 1942. In fact, *Paolina* was ferrying a cargo of phosphates from Tunisia and foundered after striking an Italian mine—an outcome due to a navigational error, not ULTRA.[69] The case of *Wachtfels* is similar. The ship was sunk not because of ULTRA but despite it, falling victim to a submarine while heading to a port in the direction opposite to that which ULTRA indicated. Bennett writes that "the primary advantage of Ultra over all previous types of military intelligence was its reliability. . . .

It was completely trustworthy."[70] But in fact ENIGMA decryptions abounded with red herrings. Sometimes decoding, translation, or transcription errors resulted in bad information. On other occasions information was ambiguous or superseded, or represented chatter, even gossip. Dispatches were sometimes of little operational value because they referred to events that were already past.

In many cases ULTRA guided British forces to targets and facilitated attacks. And in many cases SIS PAPAs enabled targets to avoid attacks or to meet them fully prepared. Convoys attacked repeatedly by ULTRA-guided bombers and submarines survived without loss. Strongly escorted convoys forewarned by PAPAs suffered losses. The war against traffic to North Africa was a game of inches, and intelligence was one factor of many—it was never, by itself, decisive.

NOTES

1. Harold C. Deutsch, "The Historical Impact of Revealing the Ultra Secret," *Parameters* 7, no. 3 (1977), p. 20.

2. There is an extensive literature on the Mediterranean war. In addition to the works cited below, the following cover the campaign in general and the war against traffic: Marc'Antonio Bragadin, *The Italian Navy in World War II* (Annapolis, Md.: Naval Institute Press, 1957); Jack Greene and Alessandro Massignani, *The Naval War in the Mediterranean 1940–1943* (London: Chatham, 1998), and *Rommel's North African Campaign: September 1940–November 1942* (Cambridge, Mass.: Da Capo, 1999); Erminio Bagnasco and Enrico Cernuschi, *Le navi da guerra Italiane 1940–1945* (Parma: Ermanno Albertelli, 2003); Vincent P. O'Hara, *The Struggle for the Middle Sea* (Annapolis, Md.: Naval Institute Press, 2009), and *In Passage Perilous: Malta and the Convoy Battles of June 1942* (Bloomington: Indiana Univ. Press, 2012); James J. Sadkovich, *The Italian Navy in World War II* (Westport, Conn.: Greenwood, 1994); Richard Woodman, *Malta Convoys 1940–1943* (London: John Murray, 2000).

3. F. H. Hinsley et al., *British Intelligence in the Second World War: Its Influence on Strategy and Operations* (New York: Cambridge Univ. Press, 1981), vol. 2, p. 423. For a good synopsis of the way the ULTRA secret was revealed, see Jürgen Rohwer, "Signal Intelligence and World War II: The Unfolding Story," *Journal of Military History* 63, no. 4 (October 1999), pp. 939–51.

4. Ralph Bennett, *Ultra and Mediterranean Strategy: The Never-Before-Told Story of How Ultra First Proved Itself in Battle* (New York: William Morrow, 1989), p. 136.

5. See Giuseppe Fioravanzo, *La Marina Italiana nella Seconda Guerra Mondiale,* vol. 1, *Dati statistici* (Rome: Ufficio Storico della Marina Militare [hereafter USMM], 1972). Submarines returned to Malta in mid-August.

6. See Salvatore Orlando, *Il Servizio Informazioni della Marina Militare organizzazione e compiti (1884–1947)* (Naples: ESI, 2003); David Alvarez, "Left in the Dust: Italian Signals Intelligence, 1915–1943," *International Journal of Intelligence and CounterIntelligence* 14, no. 3 (Fall 2001), pp. 368–409, and "Axis Sigint Collaboration: A Limited Partnership," *Intelligence and National Security* 14, no. 1 (Spring 1999), pp. 1–17.

7. "Intelligence from intercepted German, Italian and Japanese radio communications, WWII," DEFE/3/760, MK 7939, and DEFE/3/761, MK 8006 and 8015, The National Archives, Kew, England. All DEFE materials are at The National Archives [hereafter TNA]. All ULTRA signals were date and time stamped in the format "1523/2/7/42 GMT"—that is, 1523 (3:30 PM) on 2 July 1942, Greenwich mean time. Italian signals were stamped with local time, which was GMT plus two hours. Local times given in intercepted German or

Italian messages were translated into GMT by Bletchley Park and transmitted back to Cairo in that format. In this article all times cited as part of an ULTRA dispatch are GMT, and all other times are local.

8. Fondo Supermarina, "Intercettazioni, estere e informazioni" no. 6, a 18 dal 24-5-1942 al 8-1-1943, message 23265, Archivio dell'Ufficio Storico della Marina Militare, Rome [hereafter Intercettazioni, and message number]. These are sequentially numbered forms with decryption transcriptions sent by the SIS Section B to Supermarina.

9. Intercettazioni, 23278.

10. For example, see Mediterranean Operation Insect ("You were reported by enemy aircraft at 0945C today Tuesday"), Alexandria to *Eagle* 1258C/21, MC K6C, reel A2147, "Admiralty War Diary," 21.7.1942, ONI, National Archives and Records Administration, Washington, D.C. [hereafter Diary]. *Eagle* thus learned it had been reported, three hours and thirteen minutes after the fact.

11. Intercettazioni, 23298 and 23300; AIR 22/366, Air Ministry Daily Resume of Air Operations, vol. 7, 01 July–31 December 1942, Night 2/3 July 1942, TNA [hereafter AIR 22/366, and date]; AIR 27/407, Operations Record Book, No. 39 Squadron RAF, Month of July 1942, TNA [hereafter AIR 27/407, Operations Record Book, 39 Squadron]; Diary, 3 July 1942, Malta Air Report, TNA.

12. Intercettazioni, 23314, 23315, and 23317; AIR 22/366, Night 3/4 July.

13. Aldo Cocchia, *La Marina Italiana nella Seconda Guerra Mondiale,* vol. 7, *La difesa del traffico con l'Africa settentrionale: Dal 1 otto-bre 1941 al 30 settembre 1942* (Rome: USMM, 1962), p. 296.

14. DEFE 3/762, MK 8501.

15. AIR 22/366, 9 July. DEFE 3/762, MK 8532 warned that five night fighters were assigned to the convoy's protection.

16. Intercettazioni, 23577 and 23580.

17. Intercettazioni, 23584, 23587, 23588, and 23592; Diary 11.7.42 Bi-Weekly Opsum No. 37.

18. AIR 22/366, Night 9/10 July; DEFE 3/762, MK 8650.

19. DEFE 3/762, MK 8653; Jori Gino, "I rifor-nimenti dal mare, alle forze italo tedesche

attestate a El Alamein per la ripresa dell'at-tacco all'Egitto (2 luglio–2 settembre 1942)," *Rivista Italiana Difesa* (February 1986), p. 84.

20. Intercettazioni, 23357.

21. DEFE 3/762, MK 8554.

22. See Hinsley et al., *British Intelligence,* pp. 402, 729, table "Contributions of Sigint to Axis Shipping Losses on North African Routes"; Cocchia, *La difesa del traffico,* p. 489; DEFE 3/763, MK 9364.

23. DEFE 3/763, MK 9594.

24. See Gino, "I rifornimenti dal mare," p. 84.

25. DEFE 3/764, MK 9541, 9550, 9554, 9556, and 9562; AIR 27/407, Operations Record Book, 39 Squadron.

26. DEFE 3/764, MK 9589; AIR 22/366, 23 July; Cocchia, *La difesa del traffico,* p. 443.

27. Intercettazioni, 24131, 24132, and 24136.

28. DEFE 3/764, MK 9637 and 9668; DEFE 3/766, MKA 98; AIR 22/366, 24 July.

29. Intercettazioni, 24223, 24283; DEFE 3/766, MKA 374 and 398.

30. Intercettazioni, 24339; Cocchia, *La difesa del traffico,* p. 445; DEFE 3/767, MKA 584, 657, and 698.

31. AIR 22/366, 28 July; DEFE 3/766, p. 452; Di-ary, 29.7.1942, Malta Air Report.

32. DEFE 3/766, MKA 483 and 865.

33. Hinsley et al., *British Intelligence,* p. 729.

34. Intercettazioni, 24528 and 24537; DEFE 3/767, MKA 515.

35. DEFE 3/767, MKA 657, 746, 886, and 978.

36. Intercettazioni, 24570; Cocchia, *La difesa del traffico,* p. 310; AIR 22/366, 4 August; Diary, 6.8.1942, Cositrep No. 473.

37. Arthur Hezlet, *British and Allied Submarine Operations in World War II* (Portsmouth, U.K.: Royal Navy Submarine Museum, n.d.), chap. 15; DEFE 3/767, MKA 903.

38. Cocchia, *La difesa del traffico,* p. 308; Hinsley et al., *British Intelligence,* p. 730; DEFE 3/767, MKA 914.

39. DEFE 3/769, MKA 1589; DEFE 3/770, MKA 2001 and 2056; Cocchia, *La difesa del traffico,* pp. 450–51.

40. DEFE 3/768, MKA 1431; DEFE 3/769, MKA 1607; Hinsley et al., *British Intelligence,* p. 731.

41. Intercettazioni, 25001 and 25003; DEFE 3/768, MKA 1375; DEFE 3/769, MKA 1523 and 1754.

42. Intercettazioni, 25015, 25016, and 25021.

43. DEFE 3/770, MKA 2021 and 2028. See MKA 2100 and 2127 for information regarding the submarine attack and subsequent towing.

44. Gino, "I rifornimenti dal mare," p. 85; DEFE 3/771, MKA 2615, timed 0649/24/8/42, disclosed that the field marshal was suffering from "low blood pressure with tendency to fainting attacks due to stomach trouble aggravated by strain of recent weeks and climatic conditions."

45. Antonello Biagini and Fernando Fratolillo, *Diario Storico del Comando Supremo* (Rome: Ufficio Storico dello Stato Maggiore dell'Esercito, 1999), for 17, 23, and 27 August 1942.

46. AIR 22/366, Night 16/17 August; Cocchia, *La difesa del traffico,* p. 314; DEFE 3/769, MKA 1833.

47. Intercettazioni, 25103; AIR 22/366, Night 18/19 August; Diary 20.8.1942 Cositrep No. 487.

48. DEFE 3/770, MKA 2181 and 2290.

49. Intercettazioni, 25134; AIR 22/366, Night 20/21 August.

50. AIR 22/366, Night 20/21 August; AIR 27/407, Operations Record Book, 39 Squadron; DEFE 3/770, MKA 2196 and 2268, also 1946, 2208, 2280, and 2313.

51. Intercettazioni, 25208; DEFE 3/770, MKA 2385, also 2308 and 2494.

52. Intercettazioni, 25254; AIR 22/366, 21 August.

53. DEFE 3/770, MKA 2208, 2385, and 2494.

54. For example, DEFE 3/770, MKA 2728, reported *Kreta*'s expected arrival ("convoy composition not known") ten hours before the fact. At 1901 on the 25th there was a report that it was stopped off Tobruk with engine damage; DEFE 3/772, QT 26. For Albacores at Malta see War Diary 22.8.1942, Situation Report, Mediterranean.

55. Intercettazioni, 25377; AIR 22/366, Night 26/27 August, 27 August, and Night 27/28 August; Cocchia, *La difesa del traffico,* p. 322. See DEFE 3/770, MKA 2596 (expected arrival), 2612 (sailing arrangements), 2648 (escort details), and 2691 (air escort), all generated on 24 August. See also DEFE 3/722, QT 120, 0719/27 (course) and QT 181 (air escort details and expected arrival time).

56. Hinsley et al., *British Intelligence,* p. 732; Cocchia, *La difesa del traffico,* p. 457; AIR 22/366, 27 August and Night 27/28 August; AIR 27/407, Operations Record Book, 39 Squadron; DEFE 3/772, QT 100 and 182. MKA 2627 and 2628, both sent on the morning of 24 August, gave the sailing arrangements for *Istria* and *Dielpi,* respectively.

57. Hezlet, *Submarine Operations,* chap. 15.

58. Intercettazioni, 25393; Cocchia, *La difesa del traffico,* p. 327. The fuel delivered to make up the promised 5,700 tons consisted of 117 in *Tergestea,* 2,545 in *Giorgio,* 2,749 in *Alberto Fassio,* and 382 in *Kreta.*

59. Intercettazioni, 25347.

60. Intercettazioni, 25416, 25467, and 25468.

61. DEFE 3/772, QT 137.

62. For *Unione* see DEFE 3/772, QT 110, 220, and 272, giving its arrival. *Algerino* was the subject of QT 290, which stated that it was expected in Tripoli.

63. Intercettazioni, 25432 and 25433; AIR 22/366, 29 August and Night 29/30 August; DEFE 3/772, QT 106, 162, 177, 202, 229, and 277.

64. DEFE 3/772, QT 337, also 229, 289, 367, 417, and 425; AIR 27/407, Operations Record Book, 39 Squadron.

65. Intercettazioni, 25575, 25576, and 25594; AIR 22/366, Night 1/2 September.

66. Hinsley et al., *British Intelligence,* p. 732; DEFE 3/773, QT 581; DEFE 3/772, QT 280 (routes), 284 (escort and route), 354 (sailing arrangements), and 505 (position and route).

67. Intercettazioni, 25603 and 25623; AIR 22/366, Night 1/2 September; DEFE 3/773, QT 513.

68. Biagini and Fratolillo, *Diario Storico del Comando Supremo,* for 30 August and 7 September 1942; Igino Gravina, *Le tre battaglie di El Alamein* (Milan: Longanesi, 1971), p. 215.

69. Hinsley et al., *British Intelligence,* p. 732.

70. Bennett, *Ultra and Mediterranean Strategy,* p. 17.

COMMENTARY

STOWAWAY SOLDIER, CAMOUFLAGE IN A KHAKI WORLD CREATING A SINGLE CULTURE OF TRUST FROM DISTINCT SERVICE CULTURES

Charles W. Callahan

After three decades of wearing Army green and camouflage, I finally went to sea. My first "ship," however, was miles from any ocean. In the summer of 2010 I became the executive officer / deputy commander of National Naval Medical Center in Bethesda, Maryland (NNMC). I was the first Army officer to ever hold the job. My Army career had begun in the infantry, back when we were still training to fight "Ivan" in the Fulda Gap in Germany. After spending my entire adult life in the Army, I was struck during my first year at NNMC with how differently the Army and Navy operate. It became clear that these differences were underappreciated in 2005 when the BRAC, Base Closure and Realignment Commission, drafters directed that the two medical centers realign to form the new medical center by September 2011.

Culture is a set of repeated behaviors motivated by thoughts and feelings based in belief that is developed over a long period and reinforced as an individual matures in a given culture. The uniformed services each have well-defined, discernible cultures, as Carl Builder discusses in *The Masks of War.* He discusses the different services' primary cultural foundations: for the Navy, independent command at sea; for the Air Force, devotion to technology; and for the Army, service to the country as a citizen-soldier.[1] Cultural differences between the services were among the

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primary challenges in the medical center merger, and in many ways they posed the greatest risk for its failure.

Much of the work to integrate the different cultures was superficial, such as discussion of the differing enlisted ranks and ratings, as well as vocabularies unique to each of the services. Additional layers added complexity. The Army Medical Department and Navy Bureau of Medicine and Surgery had distinctly different organizational cultures, each representing several centuries of their respective unique histories. The two hospitals themselves had institutional cultures dramatically different from other medical treatment facilities. These institutions not only were significantly different from one another and from other facilities but had been in competition with each other to be considered the "nation's medical center" and the center of gravity for the care of the nation's wounded, ill, and injured service members.

Several Navy flag officers who took the time to help me prepare for my job at NNMC told me that I would not understand the Navy culture without appreciating the significance of isolated command at sea. One admiral told me, "When the ship disappears over the horizon it is a world unto itself, and the captain's word is law." When mutiny and anarchy are the biggest threats to a ship far from the safety of home port, obedience to the captain and to the chain of command becomes paramount. In the words of Admiral R. A. Hopwood of the Royal Navy, "Now these are the laws of the Navy, and many and mighty are they, but the hull and the deck and the keel and the truck of the law is obey."[2] Obedience to and utilization of the chain of command are a clear Navy strength.

The Army has a different view of anarchy. Where anarchy is the greatest threat at sea, command on the ground almost requires a state of controlled anarchy. Subordinate Army commanders are given their commander's intent and some general guidance and are then expected to improvise and adapt operations to meet the challenges of the battle. This expectation affects and shapes the perception of the chain of command in a way that is different from that of the Navy.

Sociologist Geert Hofstede has researched a system of codifying cultural differences and has described several key dimensions that provide insight into the differences between Army and Navy cultures. The "power distance index" (PDI) is the degree to which those with the least power in a cultural system are comfortable with the distance between themselves and those who hold the greatest power. For example, Asian, Latin, African, and some Arab countries have large PDIs—there is a great degree of comfort with the differences in social strata. Northern European countries, as well as the United States, have considerably lower indexes.[3] While I am not aware of its having been measured, I suspect the Navy culture that has evolved from the traditional command at sea would indicate a very large PDI, especially when compared to Army culture.

My commander at Bethesda taught me that Naval Academy plebes are taught five acceptable answers to a question: *Yes, sir!, No, sir!, No excuse, sir!, I'll find out, sir!,* and *Aye, aye, sir!*—the latter acknowledging the senior's statement as a legally binding order. Soldiers, however, sometimes answer a superior officer with the word *Roger,* the old phonetic-alphabet designator for the letter *R,* which implies that a message has been received. More commonly of late, a soldier will answer with a *Hooah!* The derivation of this response is controversial, but some suggest that it should be spelled *HUA*—heard, understood, acknowledged. In this case, rather than accepting a legally binding order, the soldier who replies, "Hooah!" has in essence told the superior officer that he understands and will respond to the request when he is able. The difference in meaning between the responses *Aye, aye!* and *Hooah!* is emblematic of the cultural difference in the idea of command.

In practical terms in a joint environment this difference manifests itself when Army personnel jump or ignore the chain of command, following a matrix approach to communication, demonstrating improvisation and initiative as they reach out directly to individuals in other divisions to accomplish a task. The presumed differences in the PDI between Army and Navy cultures are manifested in Navy personnel as an aversion to anarchy and an emphasis on using the chain of command. For example, Navy personnel will often react to interference in the chain of command with *indignation,* while Army personnel, more comfortable with command ambiguity, respond with *indifference*.

There are also cultural differences between the Army and Navy that have their basis in the characteristics inherent to Army operations on the battlefield in contrast to those of Navy operations at sea—the battlefield versus the battleship. The Army approach to solving a problem or challenge in battle is to reach for more people or "stuff." During World War II, as the U.S. Army broke out of the Normandy beachhead following D-Day in the summer of 1944, its forces rapidly exhausted the supply of replacement soldiers and supplies needed to keep fighting. The solution was the "Red Ball Express," a continuous convoy of more than six thousand trucks moving forty-five tons of supplies a day to the front. There is always room on the battlefield for more people and more stuff.[4]

In contrast, a challenge or problem at sea cannot be solved by adding more people or supplies. There is no room, but even if there were, the means to resupply do not always exist. Navy culture has developed a highly refined ability to develop and modify processes and procedures as an approach to solving problems and mitigating risk. The classic example of the critical importance of procedure in Navy culture is the often-cited disaster on board the aircraft carrier USS *Forrestal* in the summer of 1967. That morning one of the two key processes developed to avoid accidental launch of a fighter-jet rocket pod was bypassed for expediency. The resulting accidental missile launch, detonation of ordnance, and

fuel fire led to the deaths of 134 sailors, injuries to 161, and a fire that blazed for twenty hours.

In the Navy operating environment, bypassing established process and procedure can have devastating, even deadly effects. A screw that has dropped off the tread of an Army tank in the field is consequential only if the tank stops moving, but the same-size screw on the deck of an aircraft carrier can be sucked into a jet engine and destroy a multimillion-dollar aircraft at launch. In the Navy, process matters; it is the primary means for solving problems and reducing risk.

During the national capital health-care mergers, there were many times when Navy and Army staffs working together encountered lines drawn on the basis of these differences. Navy personnel, who were sometimes invested in successful processes and procedures long established at NNMC for the administration and care of patients, presumed that those same procedures would define the way the new medical center would operate. That expectation proved frustrating for incoming Army personnel when these decisions about existing policy seemed to have been made with little discussion.

Army leaders designing future clinical operations for patient care at Walter Reed National Military Medical Center (WRNMMC) often included in their plans all the personnel and equipment that they had had at Walter Reed Army Medical Center (WRAMC), as well as new equipment ordered as part of the BRAC relocation. That presumption contributed to nearly a fifth more military and civilian staff in the new medical center than originally anticipated and a continuous stream of "reuse" equipment brought over from the closed center for the first year after the merger.

There were also nuances that had to be resolved regarding the hospitals' governance and the way that health-care business is run. Army command teams turned over frequently, so that the historical center of gravity at WRAMC comprised the clinical department chiefs who handled medicine, surgery, orthopedics, obstetrics/gynecology, pediatrics, etc. These leaders had longevity that was consistent with the traditional structure of nineteenth-century academic medical centers like Johns Hopkins. Further aggravating hospital governance challenges, the command structure of Army hospitals has developed in a way similar to that of an Army division.

In large Army medical treatment facilities, the commander fills a role equivalent to that of the division commander, the deputy commander of clinical services that of assistant division commander for maneuver or operations, the deputy commander for administration, and the assistant division commander for support. The deputy commander for nursing and other members of the hospital executive committee joined the Army hospital governance team relatively

recently. For example, the chief nurse at WRAMC moved into an office in the command suite in 2006, ninety-three years after the hospital opened its doors.

In contrast, NNMC, as is typical of Navy medical facilities, was governed like a ship. Senior leadership included the commanding officer, executive officer, command master chief (the senior enlisted member), and then heads of the hospital directorates, departments, and divisions. Like the ship's executive officer, the hospital deputy functions as chief operating officer. In addition to the responsibility for the mission and the crew, the commander's job is specifically to train the deputy to become a commanding officer. Both new joint hospitals in the Washington, D.C., area—WRNMMC and the Fort Belvoir Community Hospital—include this leadership position, designated as the chief of staff. Army hospitals have no equivalent.

In a Navy facility, the clinical and administrative functions of the hospital are arrayed like departments on a ship—administration, deck, engineering, navigation, supply, and weapons. The new joint hospitals too are organized consistent with the Navy model, with different directorates (including nursing, dentistry, surgery, medicine, behavioral health) or assistants (public health and medical staff), as well as administrative services (administration, operations, and comptroller) under several more. Each directorate is led by a deputy commander, who reports to the chief of staff.

The traditional Army hospital structure worked well when the scope of work for the deputies was narrower, and it is still relatively effective in smaller facilities. But as missions grew and became more complex, it became a challenge for the traditional structure to provide effective command and control. Hospital governance at WRAMC (having developed at the same time as other historic academic institutions, like Johns Hopkins) reflected this structure, in its organization around the major academic departments. So the center of gravity at WRAMC came to rest with the academic clinical department chiefs. These senior colonels represented the institutional memory of the organization, while deputy commanders and commanders rotated in and out of WRAMC every one or two years.

The practical governance structure and system for the new hospital had to be developed to allow adequate authority to rest with the deputy commanders while still allowing scope for the influence and leadership of the new integrated clinical department chiefs, many of whom had served in these roles for many years at WRAMC. This change in governance was another major cultural divide between organizations, and the operational implications in command and control are still being recognized.

On executive rounds in one of the WRNMMC clinics, I was reminded of the difference between the "chief" at the old WRAMC and the "chief" at NNMC

when I asked a young sailor to get me her chief. Instead of the service chief, she returned with her chief petty officer, the real center of gravity in any Navy organization. Even after six months as a merged organization, service and institutional cultures still ran deep. The center of gravity for both NNMC and WRAMC was the "chief," but the word implied different people in the two services. On board ship the chief petty officer is imbued with power and authority to represent the commanding officer to the enlisted personnel. This authority is somewhat blunted in the occasionally less formal, more fluid dynamic of the battlefield, where the Army senior enlisted role developed. Also, of course, in Army medicine "chief" has a different meaning that harkens to the academic clinical leaders typical of the older WRAMC structure.

The civilian business world recognizes the significance of the differences between the services and the skill sets that leaders bring to private industry. In a recent *Harvard Business Review* article, Boris Groysberg and his colleagues note that former military officers make up just 3 percent of the U.S. adult male population but represent three times that proportion of the chief executive officers in Standard & Poor's and Fortune 500 firms. Looking more closely at forty-five of these civilian executives with military experience, the authors observed that former Navy and Air Force officers adopted process-driven approaches to management, whereby personnel follow standard procedures without deviation. They were more likely to run highly regulated industries and disciplined innovation sectors. On the other hand, chief executives with Army and Marine Corps experience embrace flexibility and empower people to act on vision with initiative, while working at smaller firms where direct communication and direction are possible.[5] Cultural differences clearly carry over and can be leveraged into advantage in the civilian business world.

The cultural transformation of two storied institutions into a new culture of mutual, shared trust for the Walter Reed National Military Medical Center will likely take decades. The evolution will be made more complex by the replacement of a third of the uniformed staff every year by an influx of Navy and Army personnel who have never operated with a sister service before. Until the recent conflicts in the Middle East, a Navy or Army medical officer could serve an entire career without spending any time working alongside professionals from another service.

Now, however, Navy enlisted personnel and officers routinely deploy on the battlefield with Army units, Army hospitals care for Marines, Air Force professionals care for all services on evacuation missions, and Army medical headquarters manage logistics for Navy medical trauma teams. As key leadership roles at the medical center, including that of the commanding officer, rotate between the

different services, the culture of WRNMMC, as well as Fort Belvoir Community Hospital, will evolve into one that will be formed less by one service and more by the institution's people, patients, and unique missions.

We have learned an invaluable lesson from more than a decade of war together, as we shake the same dust from our identical khaki boots. It is a lesson that will guarantee the eventual success of the merger of WRNMMC and the emergence of a new culture that represents all our unique backgrounds. It is the creation of this new culture that must be the primary task of the medical center leadership. Admiral Vernon E. Clark, the Chief of Naval Operations from 2000 to 2005, observed that "culture is the result of the combined decisions of the leadership of an organization."

The things that our separate services share are far greater than those not shared. What is different about us, in fact, makes us stronger. A single, shared common purpose—*pro cura militis,* the care of the warrior—coupled with the range of different strengths from each service culture results in an unparalleled combination that will benefit our patients in ways that would never be realized by stubborn adherence to any one service culture.

NOTES

The views and opinions expressed in this manuscript are those of the author and do not reflect the official position or policy of the Department of Defense, the Department of the Army, the Department of the Navy, or the U.S. government.

1. Carl Builder, *The Masks of War: American Military Styles in Strategy and Analysis,* RAND Research Study (Baltimore, Md.: Johns Hopkins Univ. Press, 1989), pp. 31–33.

2. *Reef Points: The Annual Handbook of the Brigade of Midshipmen* (Annapolis, Md.: Naval Institute Press, 2012), p. 133.

3. Geert Hofstede, Gert Jan Hofstede, and Michael Minkov, *Cultures and Organizations: Software of the Mind* (New York: McGraw-Hill, 2010), pp. 55–62.

4. Stephen E. Ambrose, *Citizen Soldiers: The U.S. Army from the Normandy Beaches to the Bulge to the Surrender of Germany—June 7, 1944, to May 7, 1945* (New York: Simon and Schuster, 1997), p. 113.

5. Boris Groysberg, Andrew Hill, and Toby Johnson, "Which of These People Is Your Future CEO? The Different Ways Military Experience Prepares Managers for Leadership," *Harvard Business Review* (November 2010), pp. 80–85, available at hbr.org/.

BOOK REVIEWS

IS CHINA'S FOREIGN POLICY DRIVEN BY PERCEPTIONS OF VULNERABILITY?

Nathan, Andrew J., and Andrew Scobell. *China's Search for Security*. New York: Columbia Univ. Press, 2012. 406pp. $32.95

The nation's "rebalance" to Asia has been greeted by a plethora of new books on Asia-Pacific security issues. In contrast to the many worthwhile specialist works now available, *China's Search for Security* stands out as an ambitious attempt to offer a one-volume overview of China's security situation as seen from the Chinese point of view. Both authors are established and respected scholars. Andrew Nathan is best known as an editor of the *Tiananmen Papers* (PublicAffairs, 2002), while Andrew Scobell is author of the well-regarded *China's Use of Military Force: Beyond the Great Wall and the Long March* (Cambridge University Press, 2003). This work began as a revision of their 1997 collaboration *The Great Wall and the Empty Fortress,* but the rapid changes in the Asian security landscape in the last decade have made *China's Search for Security* essentially a completely new volume.

The authors begin by asking what drives Chinese foreign policy and who makes decisions in the Chinese system. Their clear, cogent explanation of the state,

party, security, and intelligence elements that constitute the Chinese foreign policy–making elite is exceptional and is perhaps the best part of the book. The authors conclude that a small elite group still has the ability to "sustain strategic policies in a disciplined way over long periods of time." While arguably better informed and more constrained by other elements of society than in the past, the elite remains largely isolated, with the risk that it will make major mistakes or fail to adapt to changing circumstances.

Scobell and Nathan contend that Chinese foreign policy is driven primarily by perceptions of vulnerability. Chinese elites see the world as "a terrain of hazards" comprising four interlocking circles of threats: territory China administers or claims; border states, which include the United States as a Pacific power; six nearby multistate regional systems; and the rest of the world. Within this construct, the authors do an admirable job of presenting the history of China's relations with each of its key neighbors. Scobell and Nathan suggest that China engages the fourth ring

(comprising three-quarters of the world) only to serve specific interests. Though those interests are expanding, most of the finite attention Chinese leaders give to international issues focuses on challenges within and near its borders.

Presenting China's obsession with its territorial integrity, Scobell and Nathan explain Tibet, Xinjiang, Hong Kong, and Taiwan in a sophisticated and integrated overall context. They conclude that China is not expansionist but rather unyielding within its identified historical claims. By focusing on these four core geographic areas and relegating discussion of the South China Sea and the Senkaku Islands to chapters on China's relations with Japan and Southeast Asia, however, the authors understate the sometimes elastic nature of Chinese claims. In this context, the authors' focus on elite political decision making arguably underrepresents the growing impact of popular nationalism on high-profile sovereignty issues. Nationalism, they concede, is "the only important value still shared by the regime and its critics" in Chinese society.

Finally, Scobell and Nathan present the instruments of Chinese power, focusing a chapter each on the economic, military, and "soft power" tools at the disposal of the Chinese Communist Party. They conclude by offering three possible trajectories for Chinese development: economic success and authoritarianism (the "Singapore model"), political democratization, and regime failure. The authors do not betray which of these outcomes they view as most likely. Consistent with their presentation of the Chinese point of view, they conclude that China no more knows its own future than does anyone else.

Reducing a topic this complex into one volume is inherently an exercise in intellectual triage, and some topics are naturally underrepresented. Issues of cyber warfare, the Internet, and the political impact of new media are touched on, but their full complexities as mechanisms of Chinese soft power, potential threats to regime stability, or means of economic espionage are not fully explored. Consideration of People's Liberation Army capabilities, while deftly crafted, comprises less than forty pages. The Chinese navy's three years of sustained operations in the Gulf of Aden are mentioned only in passing. Readers interested in details of Chinese military capabilities and institutions will want to consult more specialized texts.

With this limited caveat, *China's Search for Security* is the best one-volume introduction to Chinese security issues in print. At once rigorous and readable, it offers U.S. Navy officers headed to the Pacific a chance to consider the region through a Chinese lens. Specialist readers may disagree with specific points of interpretation but will be impressed by the scope of the survey and the synthesis presented.

COMMANDER DALE C. RIELAGE, USN

Crist, David. *The Twilight War: The Secret History of America's Thirty-Year Conflict with Iran.* New York: Penguin, 2012. 638pp. $22

Author David Crist writes, "Conspiracy theories abound in the Middle East in part because there frequently *are* so many conspiracies." Every chapter of *The Twilight War* pulls back the curtain and sheds new light on many previously

undisclosed and often underappreciated events that have shaped U.S.-Iranian relations. This masterfully researched historical account focuses on U.S.-Iranian relations since the fall of the shah of Iran and the beginning of the Iranian Revolution. The policy and strategy decisions of the past six U.S. presidents, covert CIA operations, Iranian actions and reactions, and the struggle to create the present-day U.S. Central Command are all detailed in this book.

David Crist works as a historian for the federal government and as a frequent adviser to senior government and military officials. He is also a colonel in the Marine Corps Reserve and a veteran of the Iraq and Afghanistan wars. His research for this work included interviews and access to records of many of the principal decision makers on both sides. *The Twilight War* comes at a critical time in the relationship between the United States and Iran.

If plotted on a graph, the thirty-year chronology of events between the United States and Iran would look like two opposing synchronized sine waves: when one is up, the other is down, and never the two shall meet. Crist's engaging account provides never-before-revealed insights into the near, and often missed, opportunities for reconciliation between both countries. In what could sometimes pass for a Sophoclean tragedy, if not for the very real consequences, these two opposing nations cannot seem to get in step long enough to find ways to resolve their standing grievances.

Some readers may criticize Crist's lack of detail on the complex history of Iran during the reign of the American-supported shah. Crist explains his decision to pick up the story of U.S.-Iranian relations at the time of the

Iranian Revolution on the grounds that these are the years of direct conflict and competition with Iran. It is clear that this decision allows for a more focused examination of the current regime, as well as the events that are currently shaping our world. Those interested in prerevolutionary U.S.-Iranian relations may wish to read Stephen Kinzer's *All the Shah's Men* (Wiley Press, 2008).

General James Mattis has made *The Twilight War* required reading for members of the U.S. Central Command staff. This insightful and intellectually provocative book should be required reading in fact for all military professionals who wish to gain a better understanding of what many in the profession of arms consider the most likely reason for military conflict in the next decade.

DANIEL DOLAN
Naval War College

Smith, Jean Edward. *Eisenhower: In War and Peace.* New York: Random House, 2012. 951pp. $40

When you mention Dwight David "Ike" Eisenhower, far too many people will hark back either to D-Day and the invasion of Normandy or to a mythical, almost lyrical presidency, when life was good, three martinis accompanied every lunch, and gas cost pennies a gallon. The truth, of course, is far different and far more interesting. In *Eisenhower* Jean Edward Smith has produced what may well be the best one-volume biography on this figure. The book moves fast and yet manages to leave nothing out.

In illuminating Dwight D. Eisenhower, Smith steps adroitly and rapidly through the years of his life, maintaining the

reader's interest and never shortchanging his subject. It is a bravura performance. For example, Smith moves through Eisenhower's childhood at a gallop, while fully describing a family that was centered on a domineering, distant, and hot-tempered father but made bearable by the love and efforts of his mother, Ida.

Eisenhower's rise in the Army also speeds by, but not without explanation of the critical importance of Fox Conner, Ike's steadfast mentor and advocate; George Patton, who became a trusted friend and fellow missionary of armored warfare; and Douglas MacArthur, who both recognized and used Eisenhower's talents in Washington, D.C., and in the Philippines. Ike's rise to prominence in the late 1930s and early 1940s as an exceptional staff officer is well chronicled, as is his progressively improving ability to lead combined forces, once given major command in North Africa and Europe. Almost before the reader knows it, Eisenhower has invaded Europe, arranged for the liberation of Paris, been surprised by the Germans in the Battle of the Bulge, and terminated the war. He then becomes the first commander of NATO and the chancellor of Columbia University. Ike's campaign and two terms in the White House flow by at an equally fast pace, leading to his retirement from office and a final move to the farm at Gettysburg, Pennsylvania.

Ike's transition from military leader to political candidate to president is as surely and speedily dealt with. Smith lays out the major issues of the day and in so doing reminds the reader that Eisenhower, far from pursuing a presidency of golf and leisure, dealt with major domestic and international issues throughout his term in office. Ike was less than kind to Richard Nixon, although readers may

find it difficult to muster much sympathy for the vice president. The two men were of vastly different temperaments and capabilities, and Eisenhower made it clear he thought Nixon was not of presidential caliber. However, part of Eisenhower's antipathy might have stemmed from the fact that Nixon, with the brilliant success of the Checkers speech, forced Eisenhower to report earnings he would rather have kept private.

Smith awards Eisenhower full points for the handling of the Suez crisis of 1956. He depicts a world leader in his prime, a president who is savvy, decisive, and powerful. The reader is reminded that his stand on Suez was as much about principle as it was about power.

If, however, there is one portion of the book that truly stands out as the best part of an exceptional work, it is the recounting of how Eisenhower handled Arkansas governor Orval Faubus's refusal to desegregate public schools as directed by the Supreme Court's decision in *Brown v. Topeka.* Eisenhower the man, while in no way a racist by the standards of his day, was not one to challenge southern apartheid or other racial inequities. However, Eisenhower the president was different. He had taken the oath of office, and the Supreme Court decision made clear where his duty lay. Faubus refused to fulfill his gubernatorial responsibility to provide order and safety, so Ike stepped in, federalizing the Arkansas National Guard and ordering elements of the 101st Infantry Division to Little Rock. Equally credible was the manner in which Eisenhower refused to accept delays in desegregating the military, something for which he is routinely given too little credit.

In this excellent biography Smith also takes a major, and unfortunately

deserved, swipe at the late Stephen Ambrose. Ambrose, long accepted as a leading scholar on Eisenhower, was found to be guilty of plagiarism in some of his later works; as Smith points out, Ambrose also fabricated accounts of meetings between himself and Eisenhower, meetings that simply did not occur. The failure of Ambrose stands as a stark reminder as to the fallibility of historians and the need to get the history right. This Smith does. His scholarship is meticulous, and his book is a worthy addition to any shelf.

RICHARD NORTON
Naval War College

Berman, Larry. *The Life and Times of Admiral Elmo Russell "Bud" Zumwalt, Jr.* New York: HarperCollins, 2012. 528pp. $29.99

Larry Berman has written a scintillating biography of the man who is credited with changing the U.S. Navy more, perhaps, than any other single individual in its history. Zumwalt was controversial in his day, and Berman found during his research that feelings about the admiral, both positive and negative, still run strongly nearly forty years after his tour as Chief of Naval Operations. His book, although clearly written from an advocate's viewpoint, captures the essence of why Admiral Zumwalt was such a polemic figure during a time of great social and political turmoil, both inside and outside the Navy.

Berman crafts a comprehensive picture of a highly complex individual who was driven as much by his heart as by his keen intellect. Zumwalt's strong social conscience enabled him to perceive what most did not—a navy that was

fundamentally racist and sexist, a navy that inflicted innumerable injustices on its sailors under the assumption such practices were needed to ensure discipline among the rank and file. As Berman found, few of Zumwalt's contemporaries were his intellectual equals, particularly when it came to understanding the magnitude of the Soviet naval threat that confronted the United States in the 1970s. Berman makes clear that Zumwalt's reward for attempting both to change the Navy's force structure and to eliminate its abusive personnel policies was pushback by many of its most senior officers, who felt he was pushing too hard and going too fast. While Zumwalt saw a lack of accountable leadership, his critics saw a man hell-bent to destroy many of the Navy's most cherished traditions. To most junior officers and junior enlisted he was a godsend, who, unlike most senior enlisted and older officers, understood the difficult conditions under which they served. Berman paints a vivid picture of the social issues and grievances that were not simply demeaning to the young sailors who manned the Navy but also threatened the service's ability to man its ships and squadrons once the all-volunteer force replaced the Vietnam-era draft.

Berman also provides his readers with a riveting account of Admiral Zumwalt's troubled relationships with President Nixon and National Security Adviser Henry Kissinger. Nixon held Zumwalt personally responsible for the race riots that broke out in three ships, blaming him for allowing lax disciplinary standards that, in his view, had led to the problems. Kissinger is portrayed as a self-interested political scientist who was willing to put the nation's security at grave risk in order to achieve an ill-advised arms-reduction treaty.

Berman has penned a compelling story of a man before his time and a book that sheds greater light on the diverse challenges that confronted Admiral Zumwalt during his tenure. Naval professionals in the twenty-first century will find many of the issues he attempted to rectify in the 1970s still unresolved today.

RONALD RATCLIFF
Naval War College

Zanco, Jean-Philippe, ed. *Dictionnaire des ministres de la marine, 1689–1958.* Collections Kronos. Paris: Éditions SPM, 2011. 564pp. €45

Loge maritime de recherche La Pérouse (France). *Dictionnaire des marins francs-maçons: Gens de mer et professions connexes aux XVIIIe, XIXe et XXe siècles.* Edited by Jean-Marc van Hille. Collections Kronos. Paris: Éditions SPM, 2011. 571pp. €46.50

Jean-Philippe Zanco's biographical dictionary of French naval ministers provides an extremely useful and handy overview and guide to the history of French naval administration over a period of 269 years. The first forty pages provide a broad and authoritative overview of the history of French naval administration, a survey that includes the background for the earlier period from Richelieu to Colbert's initiatives under Louis XIV. This overview offers organizational charts that trace the transmission of naval and maritime affairs over the broad periods of French governmental history, as well as a chronological list of all ministers who served between 1626 and 1958. The following four hundred pages of the book are devoted to biographical sketches of all ministers who served between 1689 and 1958, listed in alphabetical order and written by twenty-six different contributors. About a page and a half is devoted to each individual who served the French government as minister of the navy, secretary of state for the navy, undersecretary of state for the navy, or secretary of state for the merchant marine. Each biographical sketch includes a short summary about the person's term of office as a naval minister, as well as other aspects of his life and career, and a portrait, where known, all followed by a list of the key archival and short references to the published sources about each individual. The short references are linked to full bibliographical references at the end of the volume, where one can also find an index to all personal names.

The book is particularly useful, in all periods, for its gathering of archival references to personal papers. For the periods of the Third and Fourth Republics, it is an enormous help to sorting out the frequent change in ministries, which sometimes lasted only days or months. Zanco's *Dictionnaire des ministres de la marine* is an essential guide for anyone approaching the administrative history of the French navy for the first time, as well as a ready reference guide for those who are already familiar with the subject.

The *Dictionnaire des marins francs-maçons* identifies a little-known connection between mariners and Freemasonry. The work was originally published in 2008; the 2011 edition has added more than two thousand names that range from prominent French admirals such as Suffren, d'Estaing, and Raoul Castex to the British explorers Captain James Cook and Ernest Shackleton; Admirals Rodney, Nelson, Beresford, Jellicoe, and Fraser; such Germans as Admiral von Tirpitz and Count von Luckner; prominent early American naval officers like Abraham Whipple, John Paul Jones, John Barry, Stephen Decatur, William

Bainbridge, Oliver Hazard Perry, and Matthew Perry; and later admirals of the U.S. Navy, including Winfield Scott Schley, Henry Mayo, Ernest J. King, Harris Laning, and recent chairman of the Joint Chiefs of Staff Admiral William J. Crowe, along with a host of other naval officers and mariners of all types. The entries for each person tend to be very short, sometimes only a line with the name of the Masonic lodge with which that person was associated. In other cases, such as King George VI and President Franklin D. Roosevelt, there are twenty- and thirty-line entries on the individuals' lives and Masonic connections. Some entries have dates of birth and death, others do not.

The alphabetical listing of individuals is complemented by two short appendices. The first is devoted to a listing of prominent naval officers in the twentieth century who opposed Freemasonry, such as French admirals Darlan and Platon, the Austrian Horthy, and the German admiral von Rosenberg. The second appendix lists the Masonic lodges active in 2010 that were originally founded by people with professional maritime connections, including one in France, seventy-one in the United Kingdom, twelve in the United States, and one each in Australia, the Philippines, and Cuba. Those in the United States include naval lodges established in the Washington Navy Yard in 1805 and at Mare Island, California, in 1855, as well as the Mariner's Lodge of New York, established in 1825. The alphabetical listing of individuals also includes short histories of "Naval Lodge no. 4, Washington, D.C.," and "Naval Lodge no. 2612, London." The Masonic maritime research lodge in France, under the direction of Jean-Marc van Hille, continues its pioneering research for this reference work, aiming for complete worldwide coverage. An updated digital edition is reportedly in planning.

JOHN B. HATTENDORF
Naval War College

Converse, Elliott V. *History of Acquisition in the Department of Defense.* Vol. 1, *Rearming for the Cold War, 1945–1960.* Washington, D.C.: Historical Office of the Secretary of Defense, 2012. Available at history.defense.gov/resources/ OSDHO-Acquisition-Series-Vol1.pdf. 784pp.

It is immediately obvious that the effort put into this work was monumental. The foreword by Dr. J. Ronald Fox states that "management of defense acquisition has slowly improved, but not without painful periods of recreating and re-experiencing acquisition management problems of the past. . . . It is my belief that the painful periods have resulted to a significant degree from the absence of a comprehensive history of defense acquisition or even a formal record of lessons learned."

The initial volume covers the twists and turns of the politics of the post–World War II transition from total war to a situation where a single, powerful adversary possessed the very same weapon that had ended the earlier conflict. The newly conceived Defense Department was required to oversee this problem.

Technology was accelerating across the entire spectrum in the 1950s. The newly constituted U.S. Air Force first fought in the Korean War with the short-legged Lockheed P-80 Shooting Star and ended up with the North American F-86 and the "century series" of operational fighters from the F-100 to the F-106. The Navy started out with the Grumman F8F Bearcat and ended up with the F8U Crusader, which set a record in 1956 at one thousand miles per hour.

The multiple external, real-world steering currents must be placed in historical context. There is no question that during the early 1950s, following the Soviets' demonstration of nuclear-weapons capability in August 1949, the U.S. Navy had to fight for a place at the table. This situation was exacerbated when Louis A. Johnson, the second defense secretary (28 March 1949 to 19 September 1950), canceled the construction of the carrier *United States* in what was for a very short time a period of untimely total-defense-budget reductions. It was to be British and U.S. carriers that provided air support for the ever-shrinking Korean "Pusan Pocket."

The relevance of these comments ties to the Defense Department's acquisition and the troubled development and operational life of the Navy's North American AJ nuclear bomber. World War II ace Jimmy Flatley called this period "the bad old days." It was a time when the naval aviation accident rate peaked for all high-performance aircraft. The Crusader was among the worst. The problems of the AJ were well known. The era, with all that was happening in military aviation, including aircraft like the B-58, should be viewed in this context.

The B-58 discussion covers the twists and turns of the contract, tracing an amazing technical achievement that pressed all sides of the engineering envelope from the coke-bottle fuselage to the requirement for navigation and ordnance delivery at supersonic speeds. This section of the book provides insights into and lessons in government and contractor interactions, many of which remain valid today. The similarity will become evident in the next volume when the Total Package Procurement Concept will be covered in the Lockheed C-5 chapter —an example of Dr. Fox's continuing reoccurrence of acquisition concepts.

The two major successes of acquisition in the 1950s were the Atlas and Polaris ballistic-missile programs. General Bernard A. Schriever managed the Air Force program, and Admiral "Red" Raborn led Polaris development. "Years later, [the former CNO Admiral Arleigh] Burke told interviewers that the officer he wanted 'didn't have to be a technical man. He had to be able to know what technical men were talking about. He had to get a lot of different kinds of people to work [together].'"

The Soviets tested a hydrogen bomb in 1955 and launched Sputniks 1 and 2 in October and November 1957, respectively. In September 1961 the Atlas D was operational, and in mid-November 1960, shortly after Kennedy's election, USS *George Washington* (SSBN 598) departed Charleston, South Carolina, on an operational patrol with sixteen nuclear-tipped Polaris missiles.

How did this happen?

What remains clear in the text are that both Schriever and Raborn were given carte blanche and direct access to their service heads, as well as to whoever could provide assistance in industry and academia. A review of Air Force and Navy aircraft development highlights that the two services were literally stumbling through technology advances in aero and engine developments and systems. The 1950s produced aircraft that continued (in several cases into the 1980s) to contribute—for example, the A-6 and F-4. And of course, the B-52, C-130, and KC-135 still do today.

ADMIRAL RICHARD GENTZ, USN, RET.

FIRESIDE CHATS AND CHASING RABBITS

Sir:

I believe that Parshall and I would probably agree on 99.9 percent of all things Pacific War. I also believe that his theories and speculations are totally appropriate for a group of friends huddled around a fireplace sipping their drinks and throwing out "what if" scenarios about the Pacific War. But Parshall's theories, speculations, and conjecture regarding Fuchida are anything but "history."

Parshall strongly implies ["In My View," Spring 2013] that I "quietly removed" my initial article responding to his charges from a website because of his "point-by-point rebuttal." In fact, I took the article down, in "an abundance of caution," in order to meet the *Naval War College Review*'s concerns about prior publication and exclusivity of publication. He ought to have known that—those concerns are expressed on the *Review*'s website and in the standard acknowledgment that I expect he too received back in 2010; also, I had explained this to him in early December 2012. It is dishonest for him to continue to misrepresent those facts.

One of my biggest questions is why Parshall didn't run his theories past other experts who may have been able to steer him straight before launching into publishing his thoughts. I spent a great deal of time and money submitting my research on my script and book to many experts, including Parshall, to ensure I didn't make such a faux pas. So I submitted both his article of charges against Fuchida and my response to no fewer than eight experts—experts in either the Battle of Midway, the Attack on Pearl Harbor, or on Fuchida himself, and sought their unbiased opinions. I could find no experts willing to accept Parshall's stance.

Parshall's false charge that my "scholarship on these matters is equally superficial and does not withstand serious scrutiny" is blown to pieces by the world's leading combined authority on Fuchida, Pearl Harbor, and Midway—Dr. Donald Goldstein, who, after reading both articles, commented about my reply: "Great article. . . . I always thought that [Fuchida] basically told Prange the truth. *Shattered Sword* destroyed *Miracle at Midway* and really shouldn't have. . . . Parshall

was able to destroy us with nickel and dime corrections. He makes many claims in his introduction that are not true, but being eighty-one years old, I have not rebutted[;] . . . you have put [Fuchida] and his story in the proper perspective. There is more that I could say and if [Pacific War author] Roger Pineau and others were alive, they would support you. Good job."

Parshall actually read Goldstein's comments when he made the above false charge, so why did he make that statement?

Dan King, unlike Parshall and myself, is perfectly fluent in Japanese at the university level and is an extraordinary Pacific War expert who's worked for Clint Eastwood, HBO, and The History Channel, and interviewed hundreds of former members of the Imperial Japanese Navy for his book *The Last Zero Fighter: First-hand Accounts from WWII Japanese Naval Pilots.* He studied both articles as well and said that Parshall's article was full of "high school girl reasoning" that was "embarrassingly silly." He was also well aware of Parshall's poor research habits (as I was also told by other experts). In the end, King's statement summarized the feelings of the experts, "Jon Parshall simply isn't a reliable source of information."

Regarding the Senshi Sosho, the official 102-volume military history of Japan's involvement in the Pacific War, Parshall seems to imply it's flawless and without error. As I pointed out in my article, when it first appeared in 1975 it came under immediate attack for being too military-friendly and far from objective or neutral.

Dr. Yoneyuki Sugita, Associate Professor (Japan-US Relations, International Relations in the Asia-Pacific Region) at the Graduate School of Language and Culture, Osaka University, has this to say about the Senshi Sosho: "Because this was an official project, the editors focused solely on the documentation of the available records and accepted them as faithful representations of historical evidence, without examining or interpreting . . . the work was clearly deficient. Because the research had begun ten years after the end of the war, many documents had been destroyed or scattered, numerous important officers had died, and the memories of survivors could not be considered reliable."

But perhaps the most damning judgment of the primary authors of the Senshi Sosho, former members of the military, comes from none other than Parshall himself, who stated (on his website): "The Japanese military was riddled with delusional outlooks on its role in the world, and its conduct during the war. It routinely underrated the intentions and strengths of its enemies, overrated its own capabilities, and then lied to itself after each new calamity inexorably pushed it ever-closer to defeat. Likewise, this was a military culture that placed a premium on producing the sort of 'information' that superiors wanted to hear, regardless of whether it bore any relation to reality."

These are the men Parshall now implies he trusts for the total accuracy of the Senshi Sosho.

Lastly, Parshall says that the photo of the person that might be Fuchida on board USS *Missouri* was "shown to be that of an American sailor" but fails to provide a name, rank, number, I.D. photo of the "American" with the Hitler mustache, or *any* supporting evidence of this obvious conjecture. Again, conjecture does not equal facts or history.

The onus is on Parshall, the one making the sweeping charges, to prove his case for his theories, which he consistently fails to do. As I stated in my article, no living witnesses ever contradicted Fuchida's testimonies, including Genda. Regarding Parshall's additional charges, having struck out three times, he's out, and I'm not interested in chasing any rabbits down any further holes.

In conclusion, my facts stand on their own and Parshall's theories, conjecture, and speculations should remain in their place, which may be in fireside chats, but not in history.

MARTIN BENNETT

OF SPECIAL INTEREST

RECENT BOOKS

A selection of books of interest recently received at our editorial office, as described by their publishers:

Stringer, Kevin D. *Swiss-Made Heroes: Profiles in Military Leadership.* Ashland, Ore.: Hellgate, 2012. 292pp. $24.95

This work provides a biographical array of nine officers, all with Swiss roots, in a single volume that covers a period from the Middle Ages to World War II. This unique set of leaders had an enduring impact on military history, and their deeds proved critical to the development and survival of nations, institutions, and armies.

Polmar, Norman. *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet.* 19th ed. Annapolis, Md.: Naval Institute Press, 2013. 688pp. $130

Filled with comprehensive information, up-to-date photographs, line drawings, and useful appendixes, this timely volume describes the U.S. Navy, Marine Corps, and Coast Guard during a period of intense transformation while engaged in combat operations. Also addressed in this new edition are the new F-35 series Joint Strike Fighter (JSF) and other aviation programs, Navy personnel, Marine Corps issues, Coast Guard forces, and NOAA. This updated edition meets the high expectations and exacting standards of those who rely on this volume to stay informed and to make related policy, force-level, technological, and weapons decisions related to the U.S. Navy.

REFLECTIONS ON READING

Professor John E. Jackson is the Naval War College's program manager
for the Chief of Naval Operations Professional Reading Program.

I cannot live without books.

PRESIDENT THOMAS JEFFERSON

Many people are unaware that the Chief of Naval Operations Professional Reading Program (CNO-PRP) is the only professional reading initiative in any of the military services that goes beyond merely publishing a list of important books. The CNO, Adm. Jonathan Greenert, USN, shares President Jefferson's feelings about the importance of books, and he has allocated Navy funds to purchase centrally and distribute widely nearly twenty-two thousand books to ships, squadrons, and stations around the world. As the result of this investment, more than 420 lending libraries have been established throughout the fleet, where sailors can borrow any of the eighteen books in the CNO-PRP's "Essential Books" category. Many of the additional twenty-four "Recommended Books" can be downloaded as e-books or audiobooks from the Navy General Library site on the Navy Knowledge Online (NKO) portal. It is always gratifying to hear directly from sailors at all levels about how the books are being enjoyed at the deck-plate level. Over the past few months, we have received a lot of feedback, including the following:

- A Navy captain recently wrote: "I gained great insight from reading *Navigating the Seven Seas: Leadership Lessons of the First African American Father and Son to Serve at the Top in the U.S. Navy.* Not only did I enjoy reading Richard A. Clarke's *Cyber War: The Next Threat to National Security and What to Do about It,* but I found it significantly applicable to the work I do in the cyber-security area at NORAD-NORTHCOM. I look forward to reading more books in this well thought-out and applicable reading program."

- A command master chief in the Special Warfare community wrote: "Last year we used the Navy recommended reading list to have our Chief selectees choose a book during the MCPON 365 Program and give a short oral report

to the Chiefs' Mess on what they got out of the book, what they liked and disliked about it and whether they would recommend that book to someone else and why. This grew interest in having those books on hand and the command is working to build a library of our own. We thank the Navy for their support in shipping these books to us."

- A first class petty officer recently noted: "Thank you for the opportunity to create a command reading library. The variety of books has something for everyone, which our Sailors enjoy."

- A Judge Advocate General's Corps lieutenant wrote: "My command plans to assign *The Caine Mutiny* as mandatory reading as part of a Professional Military Education program for our junior officers. On the Navy Reading website, it is noted that *The Caine Mutiny* has been used in classrooms, where it has sparked intense arguments over questions of loyalty and integrity, the responsibility of a crew to its captain, and of loyalty up and down the chain of command."

- A Navy captain in the Navy training community wrote: "Just wanted to drop a quick note of thanks for your assistance in helping us establish our Professional Reading Library. This topic is near and dear to my heart. All the best."

- A chief petty officer in the medical field wrote: "We have created a professional library and we are using our books to encourage professional development. A number of our Sailors have checked out books and are preparing to do presentations to the detachment based on the information learned in their reading."

The examples above perfectly demonstrate that the purpose of the CNO-PRP is being achieved. The books are being read, discussed, and shared throughout the fleet, and they are generating the kind of informed discussion that makes everyone in the Navy more professional and more productive. The return on the Navy's modest investment is truly manifold.

JOHN E. JACKSON

Adjudicating Discovery War Games

We know how to wargame traditional attrition warfare

We want to wargame novel operational and strategic problems

We want insights into novel problems for which there are insufficient statistics or historical case studies for other forms of analysis

People playing or adjudicating novel problems are by definition unskilled at those problems

The outcomes of interacting player decisions are driven by physics and statistics

Modern operational or strategic problems are driven by complex interacting PMESII issues, we do not know these rules for complex modern problems

We know the physics and statistics rules that govern battlefield dynamics so adjudication uses these to decide the range of what could happen

Adjudication uses subject matter expert judgment to decide the range of what could happen

For deductive games adjudicators "roll the dice" to decide what did happen in order to put players into a statistically valid situation, they are umpires

For inductive games adjudicators decide what did happen in order to force players into an situation that satisfies the objective of the game

Subject Matter Experts and Adjudicators tend to be older and more experienced people

Slightly depressed and negative people tend to be better able to think skeptically, but are not good leaders and often not hired as adjudicators

Older and more experienced people tend to be overconfident [15]

Adjudicators decide what information to provide players and give that to them

Players make decisions in response to information about opponents given to them by adjudicators

Adjudicators control the game, they are the primary players in discovery games, not just umpires

Overconfident people blur the line between what they can control and what they cannot [15]

Unskilled people grossly overestimate their own skill because they do not know how little they know [14]

Treat the adjudication and white cell as players whose behavior and demographics are collected and analyzed in the same way as those of other players

People cannot predict the decisions they or others would make under different information conditions [10]

Cannot use game decisions as a predictor of decisions that players, adjudicators or subject matter experts would make in real life

The three risk factors are present for fraudulent decision making [18]

Players, adjudicators and sponsors often believe they already know the answer [18]

Wargames are not expected to be precisely reproducible

Players, adjudicators and sponsors are often under career pressure

Peoples' beliefs are robust, even under contradictory information [19]

Examine why decisions were made and not made, what messages the actions were intended to send, and what messages were received for both players and adjudicators

Can use beliefs exhibited during a game as a predictor of how players, adjudicators and subject matter experts would interpret information in real life

Peoples' statements about their beliefs are unreliable and so cannot be directly used [5]

LEGEND

What do we want? →   What helps us get it? →

Why do we want it? →   What should we do? →

Why is this a problem? →